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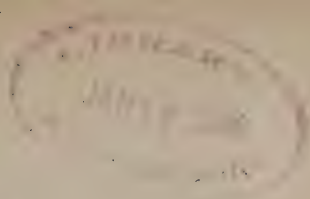
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No. 1.

METHODS OF MEAT-INSPECTION.¹

BY LEONARD PEARSON, B.S., V.M.D.,
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It is not necessary to submit to this audience any argument to prove the importance of meat as an article of diet. This is a matter that is so thoroughly understood and universally recognized that it may be accepted as axiomatic that meat is not only essential as food, but that the activity of a people is indicated largely by the amount of flesh consumed. In 1890 the British Government published a table showing the amount of meat used in the different civilized lands. This table supports the statement just made. The amounts consumed per capita and per annum are as follows :

Australia	111.6 kg.	Belgium and Holland	31.3 kg.
United States	54.4 "	Austria and Hungary	29.0 "
Great Britain	47.6 "	Russia	21.8 "
Sweden and Norway	39.5 "	Spain	22.2 "
France	33.6 "	Italy	10.4 "
Germany	31.6 "		

It will be seen that the amount consumed in the United States is greater than in any other part of the world, with the exception of Australia, where meat is so very cheap that only the more desirable portions are used as food, and the actual consumption is less than the figures indicate.

Since flesh enters so largely into our diet, and since it is derived from animals that undergo the same disease-processes that we do, and is composed of such fragile compounds that it takes on irritant and toxic properties very quickly, unless handled with the

¹ Read before the Keystone Veterinary Medical Association, November, 1897.

greatest care, it is not surprising to learn that the control of this food has attracted the attention of sanitarians from the earliest times. The first meat-inspection was under the control of ecclesiastical authorities, and in some sects, as the Mohammedans and Jews, it is carried out under the same direction to this day. Such an inspection, when originated, was as careful and thorough as the knowledge of the times would permit, but the regulations under which it is now enforced do not represent the most useful and efficient methods.

In the last century the general public was aroused, and many of the countries of Continental Europe passed laws providing for the inspection of meat, and some municipalities erected abattoirs, where all of the slaughtering of the city should be carried on under competent supervision. More recently, since the bacterial origin of many diseases has been demonstrated and the close relationship of many of the diseases of man and animals has been established, the importance of rational meat-inspection has been greatly emphasized. At this time all of the countries of Continental Europe and the British Isles have a system of meat-inspection, which, although incomplete in some places and in some details, is in the main sufficient to protect the consumer from the numerous maladies that may be contracted by eating the flesh of diseased animals, or meat that has been improperly cared for or preserved.

The system of meat-inspection that has proven most satisfactory in Europe includes the establishment of a municipal abattoir under the direction of a veterinarian trained in meat-inspection, and it is provided that all animals killed locally shall be slaughtered in this establishment. All meat-producing animals are examined while living and after they are killed. Both inspections are made because there are some conditions that cannot well be detected after the animal is slaughtered, but often have an important effect on the quality of the meat, as fever, fatigue, exhaustion, starvation, and excitement. After an animal is slaughtered its organs and flesh are examined for evidences of diseases that are directly transmissible to the consumer, parasites that may be injurious, and other conditions which, while not directly transmissible in themselves, render the flesh indigestible or toxic, and thus produce digestive disturbances or more serious disease. The carcass is also examined for the purpose of discovering conditions that render the meat innutritious or offensive, such as chronic wasting diseases, emaciation, old age, immaturity, and advanced pregnancy. Moreover, the method of slaughtering and handling the dressed meat is super-

vised, and it is seen to that all of the steps are carried out in a cleanly manner and that the meat is not unnecessarily contaminated by carelessness and filthy surroundings. The conditions and diseases to be sought for and avoided are so numerous that they cannot be discussed at greater length in this paper.

Germany has more than six hundred slaughter-houses belonging to municipalities ; each of these is under the direction of a veterinarian. In most of them there are separate halls for slaughtering the different kinds of meat-producing animals : one each for cattle, sheep, and swine. The butchers in these cities pay a reasonable rental, and are permitted to use all the facilities provided and to enjoy the advantages of buildings equipped with all possible labor-saving devices and modern conveniences. Each slaughter-house has a large cold-storage chamber, which can be used by the individual butchers upon the payment of a small fee. In this way the butchers who kill but a few animals a week, and cannot afford to equip satisfactory establishments of their own, receive all of the benefits enjoyed by those who conduct large businesses. Moreover, their meat goes on the market with the official stamp of the inspector showing that it is wholesome. The meat that is condemned is made into fertilizer by the establishment on the account of the individual butcher, and this part of the business is conducted so well that it is usually possible to realize from 20 to 25 per cent. of the original cost of the animal. This saving cannot be effected under less favorable conditions.

In this country the existing systems of meat-inspection may be divided into two classes, national and local. For some years the United States Bureau of Animal Industry has conducted a constantly-improving meat-inspection service that now extends to animals killed for export and for interstate trade in the principal meat-packing centres of the country. The work is performed by veterinarians, who examine all carcasses, stamp those that are sound, and condemn those that are unfit for food. There is also a microscopical examination of pork for the detection of trichinæ, but this extends only to the products prepared for export. Some of the cities in the United States have also organized more or less complete meat-inspection systems. The system in New Orleans, originated and developed principally by Dr. A. S. Wheeler, is perhaps as perfect as exists anywhere in the United States. It provides that all animals killed locally for food shall be inspected, and the meat is stamped. Moreover, all dressed meat brought into the city must be stamped in a similar way. And it is unlawful for

any butcher to sell meat that does not bear the stamp of the meat-inspector. In Montgomery all meat-producing animals are killed in a central slaughter-house under the supervision of a meat-inspector. These systems, and all that are followed in European countries, place the responsibility of deciding whether a given carcass is suitable for food upon an inspector who is trained in animal pathology.

In some other cities, as Philadelphia, the meat-inspection system is based upon an entirely different principle. There are laws prohibiting the sale of diseased or unwholesome meat, and it is assumed that the butcher is always competent to determine this point. Under this system detectives or police-officers are appointed to visit slaughter-houses, markets, and butcher-shops, hunt for diseased or unwholesome meat, which is condemned by a veterinary adviser called in by them, and the seller is often prosecuted. It is scarcely necessary to say that this system is undesirable: First, because it does not include an inspection of all meat sold, and inevitably permits the consumption of much that is injurious; and, second, because it assumes knowledge on the part of the butcher that he cannot possibly possess, and makes him responsible for conditions that he cannot recognize. The system is therefore incomplete, and as a permanent system it is unjust. Its chief advantage lies in the fact that it tends to make butchers more careful, so that gross pathological conditions do not reach their stalls, and a portion of the diseased meat that would otherwise be placed upon the market is barred. However, such a system constitutes a beginning in the right direction, but no municipality should be satisfied with it if a better can be obtained.

Municipal meat-inspection is of more importance in the East than in the West, because tuberculosis is more prevalent in this region, and a great many worn-out dairy-cows are sent to the shambles. Many of these cattle are afflicted with tuberculosis and other chronic ailments. They are frequently emaciated, and constitute the most dangerous class of beef-animals. Philadelphia is situated in the midst of a bountiful dairy-district, and is a large consumer of these animals. They are not killed in a large central abattoir under constant supervision, but in numerous little slaughter-houses scattered throughout the city and its suburbs. There are about one hundred slaughter-houses in Philadelphia. Many of them are quite small, situated on back streets surrounded by stables and dwelling-houses. In these establishments cattle are frequently killed at night, or very early in the morning, and

are not inspected at all. Occasionally, and as often as possible, the inspector drops in while the carcasses are being dressed, and his vigilance is rewarded almost daily by the discovery of a diseased and dangerous animal. The business of these slaughter-houses is conducted so irregularly that it is not possible to properly control them without having almost as many meat-inspectors as slaughter-houses, and if the force were enlarged to these dimensions the sanitary conditions and the surroundings of the slaughter-houses would still be such as to seriously injure the wholesomeness and keeping qualities of much of the meat dressed in them.

A further reason for a better system of meat-inspection here is that there is a constant and growing demand for many parts of carcasses which are more frequently diseased than the flesh, and were formerly thrown away. Our ever-increasing foreign population consumes viscera for which there was no market a few years ago, and meat-inspectors frequently find that such organs are diseased to an extent that renders them unwholesome, while the rest of the carcass can safely be sold. As a result of the fact that inspectors are not constantly present, a great many diseased carcasses are unquestionably sold, and frequently without the knowledge of the butcher who handles them. His training is not sufficient to enable him to detect important symptoms and lesions. In some cases, however, he does detect and remove them so thoroughly that the suspicions of the meat-inspector are not aroused.

The conditions that prevail in Philadelphia are not unique. They exist in almost every city in this country, and it is largely on account of the multiplicity of slaughter-houses that thorough systems of meat-inspections have not been more generally established.. An adequate control of the meat-supply of Philadelphia cannot be enforced without a great extension of the present force or a concentration of the business of slaughtering. The latter plan is supported by the experience of all of the older civilized countries, and is to be recommended not only because it would facilitate the inspection of meat, but for several other reasons as well. It would do away with all of the small, poorly equipped, badly managed slaughter-houses, which are in many cases nuisances in their respective neighborhoods. It would make it unnecessary to drive cattle through the streets, a practice that blocks traffic, frightens people, and at times occasions serious accidents. It would give small butchers the advantages enjoyed by wholesalers; they could use the facilities of the large slaughter-house, which are immeasurably superior to their individual establish-

ments, and the cold-storage system could be used by all, with economy to the dealer and advantage and increased wholesomeness of the meat to the consumer. The offal and the condemned organs and carcasses could be disposed of to better advantage. Local meat would gain in reputation, if such a system were enforced, and trade could be built up on its merits, and competition with Western beef would be less difficult.

Moreover, it has been shown by repeated trials of this system that instead of increasing the cost of meat it tends to reduce it.

A large establishment can be conducted by coöperation between butchers at less expense than when each has his own establishment. In Europe such union or central abattoirs are owned by municipalities, and undoubtedly this is the most desirable system, because under it all butchers are assured equal rights and privileges. It has been found that the rentals derived from these establishments are sufficient not only to pay the running expenses, but to afford a reasonable return for the investment. The whole system is not only of great advantage to the consumer of meats, but it subjects butchers to no hardship whatever, and makes it more convenient and cheaper for them to conduct their trade.

SOME OF THE MORE PREVALENT DISEASES AFFECTING ANIMALS.¹

BY A. W. CLEMENT, V.S.,
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THE subject of this paper is a somewhat long and wearying one, but I shall confine my remarks to the discussion of some of the diseases which are communicable from man to animals, or vice versa, with one exception—that of the disease affecting horses, which has of late been epidemic in some parts of our State. The diseases which are transmissible from man to animals and from animals to man are very interesting, and are of importance to the community. They are diseases to which a very considerable amount of study has been devoted, which has been attended with a very great amount of good. What Koch has done for tuberculosis, and what Pasteur has done for rabies, will long be remembered as the very bulwarks of modern medicine.

The question of tuberculosis alone is of great importance, both as a commercial question and as one affecting the life and comfort

of a very considerable portion of our community. A disease which causes the death of one in five, or one in seven, of our population is no laughing matter, I can assure you—a disease which is causing to-day more money to be spent upon it than are all diseases to which humanity is susceptible ; a disease which is preventable to a great extent, and one to which science is devoting more attention to-day than it is to any disease affecting man or animals. It is an infectious disease ; there is no doubt about this, as all of you who are physicians, and as many of you who are not physicians, know. It is not only an infectious disease, but the means of infection have been thoroughly studied. The organism causing the disease was isolated by Koch, and its properties are well known to all men who work in laboratories. They know that the organism can be detected in organs affected ; that it can be grown outside of the body in proper nutriment, and that if inoculated into a healthy animal that animal will probably become tuberculous. Knowing these things as we do, it behooves mankind to do all in its power to prevent the poison from accumulating in the bodies of individuals. Just how to do this is a question which has agitated and is now agitating the minds of scientific investigators. Whether by curative agents, or rather by antitoxic agents, to produce a condition of body which is antagonistic to the growth of the tubercle bacilli ; whether by bettering the conditions of humanity so as to make them stronger, better able to withstand the attacks of the tubercle bacilli ; or whether to enforce a quarantine upon people suffering from the disease and against all food-products which may in any way transmit the disease. These, I say, are the main lines of work of the sanitarian to-day, and are more or less fruitful in their results.

Now I do not wish to be called an extremist ; I do not wish to be an alarmist ; but I do believe that the question of our milk-supply has very much to do with the disease in children and in adults who drink much of it, and who are in any way delicate. Tubercle bacilli have repeatedly been found in the milk of cows which were visibly affected, and also in the milk of cows which did not show any of the characteristic symptoms of the disease. All milk from cattle which react to the tuberculin-test should be condemned and the cattle slaughtered. This may seem a harsh statement, and one which the dairymen of the State will not relish so well ; but it is nevertheless a fact. It will cost a lot of money, and who is to pay it ? Is the State to do it, or are the producers themselves to do it directly ? I think the latter. I do not be-

lieve the State can do it directly. Some States have expended large sums of money, and are to-day expending large sums of money, to eradicate the disease from cattle, and I am much of the opinion that it is, to a large extent, a waste of money. Government supervision of such work is always more expensive than the same work undertaken and carried out as a private enterprise. Still, the work ought to be done, and ought to be done as long as tuberculosis exists, and better have the State do it than not to have it done at all. While I say that the State ought not to do it, I do not mean by any means that the State ought not to have anything to do with it. I do think that the State, through its proper office, should have control of the work, but that it should be paid for by the producer himself.

Certain men in the medical and veterinary profession are to be trusted, and more are not. Certain ones will give an honest opinion, while more will give an opinion based upon the amount of money involved in the transaction, and the one opinion may have just as much weight with the public as the other. Before he is allowed to inspect dairy-stables and give certificates, the inspector should first receive the indorsement of the Live-stock Sanitary Board, and this indorsement should be evidence to the public of his fitness for the position. What the public need is to be educated up to a pure milk-supply, and a pure milk-supply can only be assured where the stables are under the constant supervision of a veterinarian, and of an honest veterinarian, too. Why would it not be well for the larger of our milk-dairies to unite and form a syndicate or trust for the production of pure milk? to have their stables inspected and their cattle tested by a competent man, and advertise this fact to the public? How long would it be before other dairies would have to get in line or close up shop? If only a few could be gotten to do this at first, what an educator it would be to the public. Objection will be raised to the cost, but how much less the cost would be than if attempted by the State, and how much greater would be the result? The only way to insure pure milk is by inspection of the dairy-stables, not by the inspection of milk after it arrives at its destination in the city, though that would have to be done, too, to provide against the practice of some dairies watering the milk to increase the amount.

Tuberculosis is prevalent in the State of Maryland among its cattle; this has been proven by a system of inspection inaugurated by the present Live-stock Sanitary Board, which shows that $1\frac{47}{100}$ per cent. have tuberculosis to the naked eye. That is, so

many were diseased so badly as to be evident without further examination. That this number would be increased many times by the use of tuberculin has been demonstrated in my own private practice and from the statistics of other States. I have repeatedly seen cattle which were apparently healthy react to the test, and when slaughtered found tuberculous. I have in my own mind one herd belonging to a gentleman in which one tuberculous animal called attention to the herd, and when they were all tested ten out of seventeen reacted, and when slaughtered were all found to have tuberculosis to a greater or less extent. Two out of the seventeen were dangerous to human health, and they were all well-bred Jerseys, too. While testing cattle for another firm in this city it is a common practice to condemn from 1 to 20 per cent. as tuberculous. These, too, are animals which show no signs of the disease on physical appearances.

What are we to do with these cattle which react? Is the State to pay for them at a certain value for meat, have them slaughtered, and sell the meat if it be not diseased to any great extent? I say yes, provided the owner will properly disinfect his place and will buy no more cattle without having them tested. To allow cattle which react to go free means that some other dairyman will buy them and place them in his dairy; then, again, supposing that the cattle are tested and react, subsequent inoculation will give a negative result, for a while at any rate, so that the diseased cattle might be passed healthy.

What I say of tuberculosis in cattle does not include all of the dangers of infection. How often do children contract the disease from tuberculous people spitting upon the floor when children are crawling about? How often do people contract the disease by breathing air laden with tuberculous germs? These are questions which I leave for the practitioners of human medicine to determine. Certain it is that if we can have a definite inspection of the milk-supply, and, added to this, a proper observance of rules of decency by infected people, the mortality may be greatly-reduced.

Rabies does exist in Maryland, and it exists to a much greater extent than was formerly supposed. Since I became the State Veterinarian I have seen several outbreaks of the disease in cattle bitten by rabid dogs. It is not an imaginary disease by any means. It is not an hysterical disease brought on by fear from having been bitten by an animal supposed to be mad. It is a

definite, real disease, and the sooner the public are made aware of it the better it will be for the public and the better it will be for the dogs, and the sooner we will have a dog-law.

It is a mistake to believe that promoters of bench associations are afraid to have the public know this state of affairs, for they are not. It is not the thoroughbred dog that will suffer, but the mongrel cur which runs about our streets and over our pastures; he is the one that does the damage. Just in proportion to the efficacy of laws in different countries does the disease exist. In North Germany the disease is rare; in Russia it is quite prevalent; while in France and England it is not uncommon.

Rabies is a distinct disease, propagated only by inoculation. Unless one individual has it, it cannot be spread; it never arises spontaneously; when an animal has the disease he runs wild and bites everything in his way unless he be confined. He bites at objects indiscriminately. There is a peculiar, wild look in his eyes; this stage is followed by the paralytic stage.

Animals bitten show symptoms corresponding to their natures. Sheep and cattle, as a rule, show a tendency to horn and to butt. Horses show a tendency to bite and to kick. I have seen several cases of infection of cattle and sheep. Out of a herd of sixteen cattle one man lost ten from the bite of one dog; another man lost a number of stock-cattle and many sheep; still another lost three cows out of four. In two of these cows there was recovery after apparent light attacks of the disease, showing, if this be true, that the disease is not of necessity fatal. These are but a few of the many cases which have come under my notice.

A dog-law, which would tax every dog in the State would soon make the disease a matter of ancient history. Why should not such a law be passed by our Legislature? It has been said that such a law would be trampling upon the poor man; that it would be legislation for the rich; not so at all. A law imposing a tax of two or three dollars per year upon each dog would not hurt anybody who could afford to keep a dog. The owners would take better care of them, too. They would be kept at home and looked after; more than that, they would be properly fed, and not half starved, as many of the curs are at the present day. I believe that such a law is perfectly practicable, and I believe it would work well, looked at from a commercial point of view. Why any farmer should be opposed to it is more than I can see, when he knows of the number of sheep he loses in the course of a year from dogs. All licensed dogs should wear a collar, bearing an

inscription of the owner's name and the number of the license. All dogs not having this collar should be caught and destroyed. The dogs could be kept somewhat under inspection while awaiting ownership. Dogs with contagious diseases should be quickly separated from the rest, and measures taken for the prevention of the spread of these diseases among the unaffected dogs. As it is now, mongrel dogs are kept in close contact with healthy dogs. Dogs with distemper are placed in the same pen with healthy dogs. At any rate, whatever the method settled upon for its execution, the State should pass a dog-law and should see to it that its penalties be rigidly executed.

As to the disease in horses which has caused and is causing so many deaths, I shall not say much, for the simple reason that not much is to be said. It is a disease which has ordinarily been called cerebro-spinal meningitis, but the queer thing about it is that there are no cerebral or spinal lesions observable. There are no lesions whatever observable upon post-mortem examination. I make this statement not only upon my own observation, but upon the observation of many others. Our worthy President has been with me at autopsies, and he quite agrees with me; so do many more.

Johne, in reviewing Siedamgrotzky and Schlegel's work upon what appears to be the same disease, does not agree with them that there is ever a serious meningitis. Johne, however, finds a diplococcus in the spinal fluid, which, by injection, kills small animals once in a while and makes horses sick, but does not kill them. Acting upon his advice, I obtained from the spinal fluid of a horse which died in Baltimore County a pure culture, which Dr. Stokes found killed rabbits and which we found killed a horse. The same organism which we found in the spinal fluid of the first horse was found in the spinal fluid and organs of the horse and smaller animals inoculated; the symptoms produced are the same as those seen in horses suffering from the disease, though in a much slower form than is generally recognized, namely: rise in temperature, then a fall in temperature; inability to move one hind leg; then the animal gives away behind, and is unable to get up any more. He eats all right up to near the end, but this is only one horse, and not much can be said upon one experiment; I give it for what it is worth, and Dr. Stokes will show you the specimen. You will observe that it is a short bacillus rather than a diplococcus.

The symptoms of this disease in horses are as follows: They are

at work as usual ; they are either put away at night all right, or they may lag a little in their work. The next morning they are found down and unable to rise ; they continue, as a rule, in this way until they die, sometimes living a couple of days and sometimes a week. Sometimes there seems to be a paralysis of the muscles of deglutition, and sometimes they eat and drink for a good while, or nearly up to the time of their death. It has been supposed that weeds of different kinds had much to do with the disease. This is very problematical and has never been proved.

Whatever the disease is, it is extremely fatal. It affects horses in the stable and in the fields, in winter and summer, but probably it is more prevalent in summer than in winter.

SOME DANGERS OF MILK.¹

BY T. B. POTE, D.V.S.,

SANITARY INSPECTOR TO THE BOARD OF HEALTH OF TERRE HAUTE, INDIANA.

MILK is an opaque, white fluid secreted from the mammary gland of the female sex of the mammalian class, commencing immediately after the birth of its young, and continuing throughout the period in which the young is too immature to subsist upon the food of the adult.

Throughout the history of man, from his most primitive state, it is shown that this secretion of animals has been made use of as an article of food, and in different parts of the world the milk of several different domestic animals has been used, but at the present time the milk of the cow is that in general use throughout the civilized world.

The enormous amount of this secretion consumed as food may be realized when we estimate that there are in the United States alone about 17,000,000 milk-cows furnishing milk and milk-products, but 5,000,000 cows alone supply more than a billion gallons of milk to consumers annually.

This secretion of milk by animals was one to attract the attention of the early philosophers, and many curious theories and doctrines held by them have been handed down to us, but at the present they are of value only in so far as they go to make up curious history of the subject.

¹ Read before the Vigo County Medical Society.

Advancements in physiology and chemistry have been the means of bringing to light its true origin and composition and its true value as an article of food. It is a food containing all the elements required for the growth of the body, and is a perfect food for the young, being the only article supplied by nature which combines all the elements requisite to secure healthy nutrition in a form suited to the young. Containing as it does the three classes of principles, in association with water, viz., the albuminous or nitrogenous, the oleaginous, and the saccharine, it is a splendid food for the adult human being as well as for the young.

The study of milk bacteriologically has shown it to be a fluid which is almost as perfectly adapted to the existence of bacterial forms of life as it is as a food to the higher organisms.

Milk in the udder of the cow is a sterile fluid, providing the cow is a healthy one, but the moment it reaches the atmosphere it becomes the soil of bacteria, which increase rapidly on standing exposed to the air at a normal temperature.

Commercial milk, exposed to ordinary conditions, shows from 10,000 to 100,000 bacteria to the c.c.; but, fortunately, most of these are harmless, and, in fact, milk contains some bacteria which are said to add to its flavor, etc. On the other hand, however, there are those in which the elements of danger are evident, only waiting their opportunity to commence their fearful work of destruction.

Danger lies in the consumption of the fluid in which there are numerous bacteria, since if they are present the conditions are favorable for any and all forms, and among the many present and harmless there may be the few which are dangerous and destructive.

Bacteria being omnipresent, and milk being peculiarly suited to their growth, it necessarily follows that it gains these low organisms through the medium in which it passes to the consumer. In the dairy we have, therefore, come to know that the conditions under which milk is produced and handled in its preparation for the market affect it very materially. In commercial milk may be found the cause of many ailments which the human being is heir to, some sporadic in their nature, while others are contagious. The improper cleansing of vessels in which milk is handled, or the medium in which it may be allowed to remain, may result in the admission of bacteria which may produce an effect upon the milk, ending in the production of some ill effect in the digestive organs of the delicate child or invalid.

The splendid soil which milk forms for bacteria, and the slow cooling process frequently found in use among dairymen, allow the bacteria to produce sometimes, at a rapid rate, spores or ptomaines which may often be found far more dangerous than the bacteria themselves.

Germs of disease, coming from the diseased condition of the cattle supplying milk, mark one of the greatest dangers to the consumer of milk, because of the fluid usually entering the stomach as a raw food. Of such germs may be noted the bacilli of tuberculosis, a disease most prevalent in cattle, and especially dairy-cattle, affecting all animals and destroying more human lives annually than diphtheria, scarlet fever, typhoid fever, and smallpox combined. More than 14 per cent. of all deaths that occur (one person out of every eight, or, under some conditions, one in every three), are the result of this disease. It is prevalent throughout the world, and in the United States alone it is estimated that of the 63,000,000 people, 9,000,000 or more will die of tuberculosis unless something be done to prevent it. It is the opinion of an authority that the bacilli of tuberculosis is responsible directly, or indirectly, for not less than 150,000 deaths annually in the United States. In our own city 18.33 per cent. of all deaths occurring in 1896 were due to this disease, a greater percentage of mortality than the combined deaths from diphtheria, scarlet fever, typhoid fever, and smallpox, the contagious diseases so dreaded.

The exact percentage of cattle affected with this disease is difficult to reach, owing to the difficulty of collecting data upon the subject. However, wherever systematic inspection of cattle is being carried on, the percentage of dairy-cattle found tuberculous is alarmingly high. In this country an estimate is made that 5 per cent. are affected. Individual herds are not few where they have shown from 40 to 90 per cent. of their number affected with this disease. A herd of cattle supplying milk to this city, a few days ago, showed 76 $\frac{2}{3}$ per cent. of its members suffering from this disease in the most advanced state, other herds having shown a lesser percentage, from 5 to 10 per cent..

Thus is presented one of the dangers of milk to the adult, and especially the infant—milk bearing the bacilli entering the system in a raw state, as before mentioned. Milk enters largely into the dietary of children. A large percentage of infants to-day are bottle-fed; and this proportion is increasing; therefore, it seems reasonable to conclude that the great mortality of children under five years of age may be largely due to infected milk, and espe-

cially to tubercular infection by way of the intestinal glands by ingestion of milk.

Besides tubercular infection from milk, there are other dangers of disease through the agency of milk.

Typhoid fever has many times been scattered broadcast through the medium of milk. Such a danger lies in the use of milk, should it come from an infected district: 1st, in that the bacilli may gain admittance to the milk from a person working with it suffering from a mild form, or the so-called ambulatory form, or perhaps one having the care of milk and nursing a typhoid patient; 2d, a great danger lies in the possible adulteration of milk, which might be contaminated with the bacillus causing typhoid fever. The typhoid bacillus, once in the milk, finds it a splendid soil for its development, and germinates at a rapid rate, one little bacillus being sufficient to impregnate a whole can of milk, spreading the disease to a whole village or neighborhood.

The transmission of scarlet fever and diphtheria may also take place through the medium of milk, and, while these transmissions are not so well understood, they are nevertheless quite evident.

By some it is held that cows suffer these diseases and that the milk from them conveys the disease to man, but positive proof of such is wanting.

The health of the dairyman and his family, as well as any who may have the care of milk, constitutes an important factor relative to the dangers of milk from the diseases which have been mentioned. Bacteria, in their process of growth, produce spores or sometimes ptomaines which may not affect the adult using the milk, but surely affect the health of the young child whose delicate organism has not developed to the point of becoming accustomed to the poison, and, therefore, cannot react against it as would be the case in the adult.

A more severe and dangerous ptomain-poison is that of tyrotoxin, a poison thought to be due to some micro-organism, or resulting from fermentation of some form. The poison may be exhibited in milk, cheese, or ice-cream, often coming to light in a wholesale ice-cream poisoning. It is chemically a diazbenzol, crystallizing in six-sided plates, producing symptoms of dryness and constriction of the fauces, nausea, nervous depression, etc.

There are other dangers to which attention might be directed, but are often overlooked by reason of no immediate effect being shown. Such is adulteration, and particularly in the line of preservative preparations which are used for their preservative effect.

These preparations contain, as a basis, borax, boric acid, salicylic acid, or formalin, and we can readily understand the effect of these drugs upon the system of the delicate child or invalid, especially when taken day after day.

There are many vital points to this subject of milk-supply, and it is one commanding much attention at the present time. Bacteriology has thrown a new light upon the question of dairying and public milk-supply, and new dangers confront us from this point as we grow older as a people. In our advancement in civilization we leave off getting our milk from a few individual cows which roam the broad fields of pasture-lands to seek the food and exercise which best suit their tastes and needs. They now are confined in close barns, often not allowed the necessary amount of exercise, are in unhygienic conditions as to surroundings, and fed on poor food far from that which nature intended for them. Added to this, the forcing system carried on by many dairymen must necessarily make the cow another animal. Along with this the changes in the care of milk, by reason of supplying large numbers of consumers from one depot, instead of as formerly, supplying only a few from one place, account in great part for one of the present dangers of milk.

TUBERCULOSIS AND ITS RELATION TO THE VETERINARIAN.¹

BY C. W. FISHER.

CLASS '98, ONTARIO VETERINARY COLLEGE.

TUBERCULOSIS in general is too broad a subject for consideration in a paper of this kind. We will, however, endeavor to consider a few of the points of special interest to the veterinarian.

Being a topic of much general discussion at the present time, every veterinarian should become as familiar with the subject as possible. As so much has been written and published on tuberculosis in regard to its history, etiology, and pathology, we will pass hastily over these and consider more carefully a few of the important points of interest to the veterinarian.

Tuberculosis is an infectious disease caused by the bacillus tuberculosis, characterized by the formation of tubercles in the various organs of the body. It is common to man and all animals. It

¹ Read before the Veterinary Medical Society of the Ontario Veterinary College.

is not a new disease; in fact, Hippocrates, 400 B.C., described abscesses and ulcers of the lungs which characterize the disease of to-day.

This paper will consider bovine tuberculosis principally, as it is of the most importance to our profession, bringing in that of the other animals only in relation to this. Bovine tuberculosis is of long standing in European countries, but is comparatively new in America. It was brought here in cattle imported for stock-purposes, and has gradually spread from the stock-farms throughout the country. Within the past few years, through the cheapness of transportation and the desire to improve their herds, people have exchanged cattle much more than formerly, purchasing especially from these infected stock-farms. This has caused the disease to spread very fast, thus giving some people the idea that it is a new disease, while others think it has always existed in our herds. It does not originate spontaneously, however poor the management of a herd may be. A veterinarian should acquaint himself with the predisposing tendencies, also the laws of building, so as to enlighten a client who may seek his advice and services. There is much in breeding that will act as a preventive to this and other diseases.

Bovine tuberculosis, being so insidious in its character of development, and affecting any of so many various organs of the body, is a very hard disease to diagnose by physical examination alone. It is, however, important for the veterinarian to be familiar with a few of the general symptoms, some of which may be recognized in well-developed cases. First, there may be a dry, hoarse cough, especially in the morning or when the animal is exercised; upon auscultation the different râles and crepitation may be heard, or the absence of normal sounds. In advanced cases crepitation may be felt by carefully placing the hands on either side of the thorax; the animal will now have a generally unthrifty appearance. There may be enlargement of any of the lymphatic glands, such as the supra-mammary, inguinal, pre-scapular or retropharyngeal; also the udder may be affected. The appetite may be abnormal until late in the development, when it will gradually diminish, and the animal will emaciate quite rapidly; there may also be present a chronic diarrhoea. The cough and respiratory symptoms will now be exaggerated, and the animal will have a hectic fever of from 1° to 3° F.

Many of the preceding symptoms may be present, and yet the veterinarian is not certain of his diagnosis of tuberculosis, as other

diseases may give similar symptoms. The most common disease which the veterinarian may mistake from these symptoms for tuberculosis is chronic bronchitis, but with this there is usually more discharge from the nostrils.

The tuberculin-test is of the greatest value in diagnosing the disease. It consists in the subcutaneous injection of a small quantity of tuberculin, the taking of the temperature before or at the time of the injection, also during the period of from ten to twenty hours after injection, and the noting of physical as well as temperature reactions.

Tuberculin was first used as a diagnostic agent in veterinary practice in 1891 by Prof. W. Gutmann, of the Veterinary Institute, Dorpat, Russia; in America by Prof. W. L. Zuill, of the University of Pennsylvania, Veterinary Department. It is a glycerin extract of tubercle bacilli. Tuberculin is prepared by growing pure cultures of the bacillus in serum or other suitable media until highly concentrated. Glycerin and carbolic acid are then added, and the whole passed through a porcelain filter to remove the bacilli, after which the liquid is heated for a time to kill the germs if any are present. The liquid is then concentrated by evaporation in a vacuum until of the proper strength.

The temperature reaction is explained by Gamaleia in this way: the toxins of the tubercle bacilli in the tuberculin have a poisonous action on the elements of the tubercle, causing necrobiosis. The ptomaines resulting from the decomposition of the elements excite a local exudative inflammation and leucocytic infiltration. This local action results in the breaking up and elimination of the tubercular foci. The febrile reaction must be attributed to the absorption of the necrosed tissues.

The Koch tuberculin is usually diluted 1 : 10 in a 1 per cent. solution of carbolic acid, and about 2 c.c., or 30 minims, given to an ordinary adult animal. The United States and Canadian Governments each prepare it ready for use, but varying slightly in strength and dose. The size of the dose must be regulated for the condition, age, and sex of the animal. Adult males usually take a half more than females; very old animals more than medium; suspicious advanced cases should get a much larger dose; also re-tests within a short time should get a double dose.

Tuberculin is injected with an ordinary hypodermic syringe under the skin on the cervical, or just posterior to the scapular region, care being taken not to inject into the large lymphatic glands. Some directions give instructions to shave and disinfect

the parts before injecting, but many of extensive experience say this is unnecessary. Unfavorable results so seldom follow that it will hardly compensate the trouble, unless it is in a herd which is unusually filthy or has some other disease present at the time.

The temperature must be taken once, and better two or three times before injecting, especially if the veterinarian is not thoroughly acquainted with the work. The time of injection makes no special difference, but much clearer reactions will be given if the test-period comes in the morning, when the animals are quiet and the diurnal variation is the lowest. From ten to twelve hours is the usual time given before the temperature is taken; then once in two hours until eighteen or twenty after the injection. If the injection is very early, one can wait as safely twelve hours as ten if a late injection is made, as the reaction seems to be a little quicker if the animal is up and feeding. Occasionally the reaction will not reach its height until nearly twenty-four hours after the injection, hence the necessity of varying the time according to the herd. A very close watch should be made of any suspicious animals during the test-period, as they usually show physical symptoms with the reaction. Some advanced cases give no temperature reaction, and then the veterinarian has to rely wholly upon physical reaction and symptoms. Animals may have a high temperature from other causes than the tuberculin; some of these are advanced stages of pregnancy, slight septicæmia following parturition, mastitis, laminitis, period of œstrum, indigestion from either over-feeding or feeding on straw and coarse foods, improper ventilation of the stable, sudden changes of atmospheric temperature. During the test the animals should be fed as usual, but no water should be allowed, as it may cause alterations of temperature at any time.

As there are so many irregularities which may complicate the testing, no hard-and-fast rule can be laid down for the amount of reaction to condemn an animal. The experience and sound judgment of the veterinarian is required to interpret the tuberculin-test in many instances. It is from the want of these two qualities on the part of the person making the test, and not the tuberculin, that is the cause of so many reported mistakes. The tuberculin-test will never be considered reliable, nor can it hold its present good standing as a diagnostic agent, if applied by the farmers themselves.

After condemning an animal with tuberculosis, the veterinarian must in most cases verify his diagnosis by a post-mortem examination. The owner of the animal usually removes the hide for its

value, after which the veterinarian begins the autopsy. It is well to have a regular routine for such work, especially if there are hundreds of spectators. A very good method of procedure is something in this course:

1st. Support the carcass on its back.

2d. If a cow, examine the udder, supra-mammary glands, and remove.

3d. Cut sternum and linea alba, also abdominal muscles transversely.

4th. Examine peritoneum, omentum, small intestines, and mesenteric glands; remove abdominal portion of alimentary canal, and examine lymphatic glands on the stomach.

5th. Remove liver and hepatic glands, examine uterus and kidneys.

6th. Cut diaphragm and remove thoracic portion of trachea, lungs, and heart, and examine lungs, bronchial and mediastinal glands.

7th. Lastly, examine pre-scapular and retropharyngeal glands.

It would require too much time to describe the pathological appearances; furthermore, we are all more or less familiar with the descriptions. I will, however, speak of one form of the disease which may cause some one trouble: that is what is known as infiltration of tubercle. In these cases the characteristic nodule or tubercle is not found, but there is a diffuse inflammation through the organ affected, giving it an indurated feel. Upon microscopical examination numerous collections of cells may be seen, something similar to the beginning of a tubercle.

As bovine tuberculosis is of the most importance to the veterinarian, I will only briefly speak of it in other animals. Of the common domesticated animals the hog is, perhaps, the most subject to the disease after the ox. Quite often swine are affected where the cattle are badly diseased. Tuberculosis runs a much quicker course in hogs, and post-mortems show more of the softening and very little of the calcareous stage. Horses are occasionally affected; when seen it is usually more advanced in the intestines than lungs. Hens and dogs running in the barn with a badly infected herd sometimes contract the disease. Tuberculosis is very destructive to menageries of caged wild animals.

In closing, let us remember that the time is soon coming when there will be a more rigid examination of neat and beef-cattle in America; it therefore behooves us as young veterinarians to become thoroughly acquainted with tuberculosis, as well as other contagious diseases, in order to compete for appointments.

THE CLOSE RELATIONSHIP EXISTING BETWEEN THE VETERINARY PROFESSION OF TO-DAY AND ORGANIZED SOCIETIES FOR THE PREVENTION OF CRUELTY TO ANIMALS.¹

BY W. H. DALRYMPLE, M.R.C.V.S.,
BATON ROUGE, LA.

(Concluded from page 765, December, 1897.)

THERE is another thought along this line which, if I passed over without allusion, I would feel recreant to duty. I refer to the pain that is often inflicted upon the noblest of our dumb friends as the result of the dictates of *fashion*. There are many people who will thoughtlessly—and I trust I am correct in saying, unknowingly, that is, of the consequent suffering of the animal—require of the veterinarian the performance of some operation, simply because fashion seems to demand it. Relative to this topic, permit me to quote to you the remarks of the eminent British veterinary authority, Dr. George Fleming, in his work on *Surgery*. He says: “Humanity is largely concerned in the humane treatment of animals and in relieving them from pain or distress. All *unnecessary* painful operations are acts of cruelty, and should be discountenanced by the veterinary surgeon. These operations, which, after all, are only fashionable mutilations of perfect animals devised by a morbidly artificial and corrupt taste, should be suppressed, if not by law, at least by the influence of the surgeon.” From the quotation just made it may be inferred that this is the opinion and sentiment of many of the most eminent members of the profession to-day; but so long as owners remain the slaves of fads and fashions, and ignorant of the pain these “fashionable mutilations” and other modes of torture, from whatever cause, inflict upon their animals, so long will these unnecessary and painful operations and methods be practised. In other words, the demand for such must be decreased through the better education and enlightenment of the people in those matters, a knowledge of which would greatly preclude the possibility of such requests being made by those of intelligence.

I have, in the foregoing, omitted reference to open and wanton acts of cruelty which could not possibly escape the observation of even the uninitiated, and have deemed it more instructive to allude

¹ Presented to the Convention of Humane Societies at Nashville, October, 1897.

to some of the agencies which lead to painful results, but which are liable to escape the notice of those responsible for their production, with, however, no cruel intent.

Before leaving this part of my paper I would like to add a word or two with reference to lameness. It is my opinion that some of the officers or inspectors of our humane societies are not sufficiently familiar with the pathology of this condition, and seem to attach less importance, relatively, to it, and more to other conditions which to the casual observer may appear extremely severe, yet do not, in reality, produce nearly so much pain as that causing an animal to go lame. To illustrate: The driver or owner of an animal may be arrested and fined because of his animal having an abrasion of the skin, or "gall," as it is sometimes termed, below its collar, no larger perhaps than a twenty-five cent piece; yet, on the other hand, fifty or one hundred lame animals may be allowed to pass unheeded, unless in the case of those that are absolutely prostrated and unable to proceed. Now, in the case of the abraded shoulder, there may be extremely slight, if any, pain at all; while in the latter, lameness is never exhibited without pain, unless in the case of deformity resulting probably from some previous injury or pathological condition. It must not be understood that I am in any way trying to exonerate the owner of the animal with the sore shoulder and attach blame to the officer for his vigilance. This is not my object. All indications of cruelty, whether exposed to view or occult, should be dealt with; but I am of the opinion, and that from experience, that lameness in our city and other horses does not receive the attention it merits at the hands of our humane societies for the alleviation of a great deal of suffering of these animals. In continuing the consideration of the grounds upon which I claim that the profession is a most potent factor in the education of the people in the interests of humanity, I have, in the first place, to notice the fitness of the veterinarian, on account of his special course of instruction and training, which familiarizes him with the lower animals in health and in disease. He has made a study of the anatomy, both macroscopical and histological, of the various systems of the equine species, and the differential characteristics exhibited by the other domesticated animals; the physiology or functions of the numerous organs or tissues of the body, including that of movement, nutrition, etc.; dietetics, also, including the chemical analysis of the various alimentary matters, their food-value and their nutritive relations, as well as the quantity and quality required for maintenance, repair, for growth or for work.

He has studied also the various medicinal agents, both mineral and vegetable, and their actions: physiologic, therapeutic, and toxic, and pathology as well, or the study of disease to which the various systems of the animal economy are susceptible, and the most modern prophylactic and therapeutic measures to be adopted for its prevention, control, eradication, or cure; the subject of bacteriology, with its myriad forms of organismal life, their life-histories, the poisonous alkaloids they elaborate, and the antitoxins to antagonize their destructive and deadly effects. Suffice it to say that there is no branch of medical science with which the modern graduate is not familiar in its application to the lower animals, the cause of whose distress and pain cannot be elicited by interrogatories, because the symptoms are entirely objective, and have to be diagnosed by careful investigation and observation.

Possessed of such knowledge, then, can there be any good or just reason to doubt the fitness of the veterinarian as an educator of the people, or as a valuable aid to the work of our societies which are organized for humanity's sake.

As to the various channels through which representatives of the veterinary profession are, or can become instructors or educators in this great and noble cause, I might mention, first, the regular colleges, whose object is to train young men for their life-work along the lines just indicated, who go out into the world equipped with the knowledge of humane methods for the prevention and alleviation of animal suffering. Again, those of us through our connection with State universities and A. and M. colleges have the privilege and opportunity of impressing upon the youthful mind scientific truths bearing upon this subject and the Heaven-born principles of humanity in the care and treatment of live-stock.

The general practitioner, in his daily routine of professional work, has the opportunity to illustrate and explain to his client the superior advantage to be gained by the use of rational and humane methods of treatment, and to denounce the barbarisms that are perpetrated by the ignorant, illiterate, and superstitious. And I am of the opinion that anyone who would stand by and complacently witness the inhuman treatment of a dumb animal by one who is totally ignorant of the true condition, or its proper and legitimate treatment, is an accessory, and is guilty of a wanton act of cruelty.

There can be no doubting the fact, then, I think, that the veterinary profession of to-day is a most important aid in the accomplishment of the great end to which our humane societies are

striving; but to strengthen its hands along this line it needs a little more appreciation and encouragement. It must be borne in mind by our people that the day of the old "horse-doctor" is fast nearing its close, and that that worthy, who served his day and generation as best he could according to his light, has been superseded by a profession that is as honorable as it is noble, and which has within its ranks men of as high order of intelligence and education as in any other of the learned professions.

The object of our humane societies is perhaps the noblest under Heaven: preventing, mitigating, or altogether relieving the pain and suffering of those creatures who have not the opportunity nor the power within themselves to do so; and there is no organization which should be so gigantic in its membership or so universal in its power for good. People of all ranks, whether social, political, or religious, should be on its roll, and lend their best efforts to carry on the good work. We must educate ourselves out of the too common idea that the lower animals are mere automatons, and learn to know that they are flesh and blood like ourselves. Let us all adopt the golden rule, and apply it to those dumb servants and companions which the Creator has placed within our care, for our benefit, comfort, and happiness. Then we will have the pleasing satisfaction of knowing that in doing our duty to that noble part of the creation we are performing a duty to the Creator himself.

I will close with two verses from a short poem on "The Hoss," by James Whitcomb Riley:

"But when I see the beast abused,
And clubbed around as I've saw some,
I want to see his owner noosed,
And jest yanked up like Absolum!

"I love my God, the first of all,
Then him that perished on the cross;
And next my wife—and then I fall
Down on my knees and love the hoss,"

NOTHING is more conducive to bad-looking, ill-fed appearing draught-teams of horses than the habit of American drivers to trot these heavy horses at every opportunity. Many of the sons and dams of these horses were bred for four or five generations to a walking gait, and when driven beyond this pace become hard keepers and unattractive looking animals.

DAIRY- AND MILK-INSPECTION.¹

BY C. COURTNEY MCLEAN, V.S.,
MEADVILLE, PA.

(Concluded from page 752, December, 1897.)

I WILL give you a synopsis of the methods I succeeded in getting our city board of health to adopt four years ago, and the results have been not only decidedly beneficial to all consumers, but very satisfactory to the vendors, all of whom have taken more or less interest and have shown a decided inclination to profit by the requirements in obtaining knowledge that cannot help but tend to improve everything pertaining to the business of milk-production and selling; and, as a result of our milk-inspection, there is one thing specially worthy of mention, and that is, that we have reduced the mortality from that dreaded disease, cholera infantum, so that during the past two years there has been but one death each year from this disease in our city.

BOARD OF HEALTH RULES.

Duties of the Milk Inspector.

Rule 9. The Inspector of Milk shall annually inspect all dairies, cows, and appointments for supplying milk for sale in the city, shall test all milk offered for sale and procure an analysis of the same whenever the board may direct, and shall receive for his services such compensation as the Board of Health may direct.

Of Milk, Cows, and Dairies.

Rule 56. All persons intending to sell milk in the city of Meadville must make application to the Inspector of Milk for the inspection of his herd, stable, food and water supplies for herd, and apparatus for gathering and distributing the milk, and upon a favorable certificate from such Inspector, and depositing same with the Secretary of the Board of Health, shall be entitled to a certificate from the Board, that the person, having complied with the rules of inspection, is entitled to the privilege of vending milk in the city of Meadville during the ensuing year.

Rule 57. No person shall sell milk within the city of Meadville until he has exhibited to the Inspector of Milk, appointed by the Board of Health, his cows and stables and the cows and stables of all persons from whom he obtains milk, and received from the said Board and posted up conspicuously in his stand, wagon, or sleigh, or in case of personal delivery, otherwise to exhibit on demand, a certificate showing that the cows are healthy, and the stables, food, and appliances are in good sanitary condition. Any addition of non-inspected cows to the herd of any dealer shall be reported to the Inspector of Milk within ten days, and should any person sell the milk of any cow which has not been inspected and approved, he or she so offending

¹ Paper read before the Pennsylvania State Veterinary Medical Society, September 21, 1897.

shall pay a fine of not less than two nor more than ten dollars for each cow whose milk may have been thus sold.

Rule 58. Every vendor of milk within the city shall have his name plainly and conspicuously placed upon his conveyance or place of business.

Rule 59. Every person making an application for inspection as vender of milk shall make known to the Inspector the number of cows owned by him, if any, the name of the owner and number of cows of all persons from whom he gets milk, and such other information as the Board of Health require. He shall not receive, sell, or offer for sale the milk of any cow condemned at any inspection until such condemnation is removed on subsequent inspection, and this shown by a certificate in writing, made and signed by the Inspector and deposited with the Board of Health.

Rule 60. No dealer in milk, and no servant or agent of such dealer, shall sell, exchange, or deliver, or have in his custody or possession with intent to sell, exchange, or deliver, milk from which the cream or any part thereof has been removed, unless in a conspicuous place above the centre upon the outside of every vessel, can, or package from or in which such milk is sold, the words "Skimmed Milk" are distinctly painted in letters not less than one inch in length.

Rule 61. No person shall sell, or have for sale, in the city of Meadville, any unwholesome, diluted, or adulterated milk, or milk known as "swill milk," or milk containing more than eighty-seven and fifty one-hundredths of watery fluid, or less than twelve and fifty one-hundredths per centum of milk solids, or less than three and one-half per centum butter-fats, or the specific gravity of which, at 60° Fahrenheit, shall not be between one and twenty-nine one-thousandths and one and thirty-three one-thousandths, or milk from cows that, for the most part, are kept tied up in stalls, or that are fed swill, still slops, or other like food.

Rule 62. It shall be the duty of the Inspector of Milk, from time to time, to test all milk offered for sale, and to have the same analyzed whenever the Board shall so direct.

Rule 63. Anyone selling the milk of a cow suffering from sickness or injury, on conviction thereof by any magistrate within the city, shall be fined by the said magistrate not less than ten nor more than one hundred dollars.

Rule 64. No milk which has been watered, adulterated, reduced, or changed in any respect from its natural condition by the addition of any foreign substance, shall be brought into, held, kept, sold, or offered for sale at any place in the city.

Rule 65. No milk shall be sold by any person in whose family or residence there may be anyone sick with a contagious disease, especially diphtheria, scarlet fever, or typhoid fever. Milk-tickets must not be used a second time.

Application for Inspection.

To _____, Inspector of Food and Milk for the City of Meadville, Pa.:
Desiring to sell milk to the citizens of Meadville, Pa., I make application to you to inspect my _____ and appointments for the supply of milk, under the Rules and Regulations of the Board of Health of said City.

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Name of owner
Date of inspection

Applicant.

No.	Breed.	Age.	Temp.	Pulse.	Resp.	REMARKS.			

Specific gravity.

Average Butter Fats, M. M.

Average Butter Fats, E. M.

Stable—Cubic Area per Head.

[STUB.]

INSPECTOR'S CERTIFICATE.

To the Board of Health of the City of Meadville, Pennsylvania:

This is to certify that on the day of I carefully inspected the herd of cows, stalls, food, and water-supply for herd of and respectfully report as follows:

Name of milk-dealer applying for certificate

Location of dairy

Number of cows inspected

Condition of cows as to cleanliness

Disease

Condition of stalls and sheds

Articles of food used for cows

Water-supply

Condition of apparatus for gathering and distributing milk

Names and residences of persons from whom applicant obtains milk

Number of cows

Health of herd and general sanitary condition of cows, stables, and appointments from which applicant obtains milk

I certify that I made the above report after careful examination of the whole, and recommend that be granted a permit to vend milk in the city, under the rules and regulations of the board.

Inspector.

INSPECTOR'S CERTIFICATE.

To the Board of Health of the City of Meadville, Pennsylvania:

This is to certify that on the day of I carefully inspected the herd of cows, stalls, food and water-supply for herd of and respectfully report as follows:

Name of milk-dealer applying for certificate

Location of dairy

Number of cows inspected

Condition of all cows as to cleanliness

Disease

Condition of stalls and sheds

Articles of food used for cows

Water-supply

Condition of apparatus for gathering and distributing milk

Names and residences of persons from whom applicant obtains milk

Number of cows

Health of herd and general sanitary condition of cows, stables, and appointments from which applicant obtains milk

I certify that I made the above report after careful examination of the whole and recommend that be granted a permit to vend milk in the city under the rules and regulations of the Board.

Inspector.

PERMIT.

Be it known that now engaged in or about to engage in the business of vending milk within the limits of the city of Meadville, Pa., having made an application to the Inspector of Food of the Board of Health of said city, for inspection and certificate provided for in the amended Supplementary Rules and Regulations of the Board of Health of the City of Meadville, Pa., and said inspection having been made by said officer, and duly certified to the Board that said has fully and satisfactorily met the requirements of the Board of Health is hereby authorized to sell Milk to the citizens of Meadville, Pa., for one year from the day of unless this permit is sooner revoked by said Board for causes not now apparent.

Issued by order of the Board of Health, this day of A. D. 189

Attest:

Secretary.

President.

Listed in Class	,	Fees, \$	Date,
Advanced to Class	,	Fees	

Secretary.

Our inspections consist of an examination of the entire premises, cleanliness of the stables, stalls, and cows; the kind and quality of the food and water; how the milk is cooled, and where stored. We require a special milk-house where nothing else can be kept. We do not allow the old pint and quart ticket to be used any more. The cows must be cleaned daily. The wagons and cans must be clean and in good order. The inspections of milk consist of collecting samples of milk—usually eight ounces, as it requires nearly that amount to float a lactometer of the kind I use after getting the specific gravity. I test for butter-fats, using the Babcock tests, which consist of putting 17.5 c.c. of well-shaken milk in a bottle having a graduated scale on a long neck; then add 17.5 c.c. sulphuric acid and shake till the mixture turns a dark brown or black. Then the bottle or bottles are placed in the machine having receptacles that allow the bottoms to turn out and up, caused by the centrifugal motion from turning a handle. Turn the handle five minutes, during which, from not only the chemical action of the

acid but the mechanical action caused by turning, the butter-fats are separated and come to the top of the mixture. Then enough hot water is added to cause the oil to rise into the graduated stem, and you then read the amount of butter-fats the sample contains by the graduated scale.

I evaporate to dryness to ascertain the amount of solids, and I use *Hehner and Richmond's* table for calculation of total solids from specific gravity and butter-fats.

The detection of adulterations from water, if not told by the lactometer, then use the *diphenylamin* test.

There are numerous preservalines in the market to keep milk from souring, containing either sodium carbonate, boric acid, or salicylic acid, all of them easy of detection: sodium carbonate, by the *rosalic-acid* test, boric acid by the flame test, and salicylic acid by solution *ferri perchlor*. Formaldehyde will, no doubt, be extensively used when its great preservative powers are better known among dealers. The use of any of these preservalines is not so injurious to the milk, but if dealers are allowed to use them, as a matter of course, they will become more negligent and filthy, as they know their milk will keep a long time. There is no necessity for any preservative in milk when properly produced and handled as it should be.

FIVE SAMPLES OF FRANKLIN MILK TESTED.

SEPTEMBER 11, 1897.

Bottle No.	Butter-fats.	Sp. gravity.	Solids.	Cream by per ct.
No. 1, 6	4.6 per ct.	1029	12.72 per ct.	11 per ct.
No. 2, 16	3.6 "	1030	11.82 "	9 "
No. 3, 8	3.4 "	1030	11.58 "	8 "
No. 4, 3	3.8 "	1029	12.05 "	10 "
No. 5, 4	4.0 "	1029	12.02 "	10 "

COPY OF STANDING OF MILK TESTED.

JUNE 25, 1897.

Name of dealer.	Sp. gravity.	Butter-fats.	Solids.
Limber, W. . . .	1028	4.0 per ct.	11.77 per ct.
Gleason, F. E. . .	1031	4.0 "	12.54 "
Ellis, H. E. . . .	1031	4.2 "	12.77 "
Cullum, C. S. . . .	1028	4.3 "	12.89 "
Cotton, H. C. . . .	1031	5.2 "	13.82 "
Weller, J.	1031	4.4 "	13.00 "
Roha, August . . .	1031	4.4 "	13.00 "
Stewart, J.	1031	4.2 "	12.77 "

Name of dealer.	Sp. gravity.	Butter-fats.	Solids.
Cotton, Ed.	1031	3.8 per ct.	12.31 per ct.
Deater, S. E.	1028	4.8 "	12.70 "
Sherick, Dan.	1029	4.0 "	12.02 "
Van Horn, B.	1029	4.4 "	12.49 "
Roha, Joseph	1029	4.0 "	12.02 "
Cotton, Fred.	1029	4.2 "	12.77 "
Wagner, H.	1031	4.0 "	11.56 "
Schwabus, A.	1029	4.4 "	12.49 "
Acuff, G. B.	1029	5.0 "	12.42 "
Lenheim, L.	1026	4.6 "	13.24 "
Kightlinger	1031	4.0 "	12.02 "
Hamilton, J. W.	1031	5.0 "	13.70 "
Laver, George	1031	4.2 "	12.77 "
Minium, S.	1031	4.0 "	12.54 "
Roha, Jacob	1031	4.4 "	12.54 "
Onspaugh, W. E.	1031	4.0 "	12.54 "

JULY 7, 1897.

Name of dealer.	Sp. gravity.	Butter-fats.	Solids.
Roha, August	1030	3.8 per ct.	12.05 per ct.
Minium, S.	1030	3.8 "	12.05 "
Laver, George	1029	4.5 "	12.60 "
Stewart, J.	1030	4.2 "	12.51 "
Weller, John	1029	5.0 "	13.18 "
Cotton, Fred.	1032	3.5 "	12.21 "
Cullum, C. S.	1029	4.5 "	12.60 "
Cotton, Ed.	1030	3.8 "	12.05 "
Sherick, D.	1030	4.2 "	12.51 "
Van Horn, B.	1030	4.0 "	12.28 "
Hamilton, J. W.	1030	4.2 "	12.51 "
Ellis, H. E.	1032	3.6 "	12.33 "
Acuff, G. B.	1030	5.0 "	13.44 "
Limber, J. W.	1029	4.4 "	12.49 "
Cotton, H. C.	1029	4.8 "	12.95 "
Deater, S. C.	1029	4.0 "	12.02 "
Roha, Jacob	1030	3.6 "	11.82 "
("Preservative Found.")			
Schwabus, A.	1030	3.8 "	12.05 "
Gleason, F. E.	1030	4.0 "	12.28 "
Onspaugh, W. E.	1030	4.2 "	12.51 "
Kightlinger	1030	4.0 "	12.28 "
Lenheim	1029	4.0 "	12.02 "
Roha, Joseph	1029	4.6 "	12.72 "

AUGUST 11, 1897.

Name of dealer.	Sp. gravity.	Butter-fats.	Solids.
Roha, Joseph . . .	1029.5	3.9 per ct.	11.69 per ct.
Laver, George . . .	1030.5	4.4 "	12.87 "
Roha, Jacob . . .	1029.5	4.0 "	12.41 "
Stewart, J. . . .	1029.5	5.0 "	13.31 "
Lenheim, L. . . .	1030.5	5.0 "	13.51 "
Hamilton, J. W. . .	1029.5	5.2 "	13.81 "
Kightlinger . . .	1030.5	4.6 "	13.11 "
Schwabus, A. . . .	1029.5	4.2 "	12.38 "
Cotton, Ed. . . .	1029.5	4.6 "	12.85 "
Cotton, Fred. . . .	1029.5	4.6 "	12.85 "
Ellis, H. E. . . .	1029.5	4.2 "	12.38 "
Sherick, D. . . .	1027.5	4.0 "	11.64 "
Acuff, G. B. . . .	1029.5	4.6 "	12.85 "
Van Horn, B. . . .	1029.5	4.2 "	12.38 "
Gleason, F. E. . . .	1029	4.0 "	12.41 "
Cullum, C. S. . . .	1029	4.6 "	12.85 "
Onspaugh, W. E. . .	1029.5	5.0 "	13.31 "
Roha, August . . .	1029	4.2 "	12.38 "
Weller, John . . .	1029	4.6 "	12.85 "
Limber, J. W. . . .	1029	4.2 "	12.38 "
Deater, S. E. . . .	1029	4.6 "	12.85 "
Cotton, H. C. . . .	1029	4.2 "	12.38 "

C. COURTNEY McLEAN,

Inspector for Meadville, Pa., Board of Health.

A STUDY OF THE VETERINARY SURGEONS' REGISTER OF PENNSYLVANIA.

BY JOHN J. REPP,

VETERINARY DEPARTMENT, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

UNDER the direction of Dr. Leonard Pearson, State Veterinarian of Pennsylvania, I have at intervals during the last few months been engaged in the compilation of a record of the veterinarians of Pennsylvania. This has given me an opportunity to acquire considerable familiarity with the status of the profession in this Commonwealth. There appear on the Veterinary Surgeons' Registers of the sixty-seven counties of the State 1770 names. In only one county—Pike—have no registrations been made. The highest number—154—is in Philadelphia County.

Of the total number of names registered 120 are duplicates, leaving 1650 distinct registrations. Of these we may safely deduct 250

as numbering those who have died, removed from the State, relinquished practice, or registered as castrators only. This leaves 1400 men who are to a greater or less extent in the practice of veterinary medicine and surgery. Of this number, 400, or 28.5 per cent. of the total number probably in practice, are graduates of seventeen different recognized schools. It is probable that not over 375 of the 400 graduates are now in active practice.

The first law regulating practice of veterinary medicine in Pennsylvania became operative April 11, 1889. This law required all those who desired from that time forward to practise veterinary medicine or castration to make registration in the office of the prothonotary of some county in the State. The requisite qualifications on the part of the applicant for such registration were that he had practised in the State since April 11, 1884, or had graduated from a recognized veterinary school, and that he pay a fee of one dollar to the prothonotary. The law did not demand that the one registering as veterinary surgeon be a graduate. The period for registry was open for a limited time only—*i.e.*, to January 1, 1890. Practically all of the non-graduates, and all of the graduates in practice at that time, registered under this act. The Legislature of 1891 again opened the registry on the same terms as before, extending the period to January 1, 1892. This led to a considerable increase in the number of non-graduates in practice.

Some have argued that the enactment providing for security in practice to non-graduates was a mistake, but on trial it has proven itself a wise procedure. In the first place it is unlikely that the passage of a more stringent law could have been accomplished, for it would have been unjust to stock-owners in those communities where no graduate was located and where the non-graduate was the only available aid the stockmen could secure. Furthermore, a law seeking to expel from an established practice a man who depended upon it for a livelihood would most likely have been declared unconstitutional, for it lacks conformity with the "Bill of Rights."

The non-graduate practitioner has been a gradually decreasing necessity. We foresee the day when he will be no longer needed, yet it is undeniable that he has made the development of veterinary medicine possible, and for this he deserves much credit. Looking back to the early epochs of our country's history, we can discern the method by which the practice of veterinary medicine was evolved in Pennsylvania.

Before the days of veterinary schools, when A. found one of his

animals overtaken by the misfortune of accident or disease, and felt himself unable to treat it, he requested B. to render such service as was within his power. If B. manifested certain skill and met with success in treating this case, he would be called upon by C., D., E., etc., when they found themselves in similar unfortunate circumstances. In this way B. acquired a local reputation and some skill as a veterinarian. The same process was repeated in other parts of the State. In exceptional cases these men improved every opportunity within reach, studied their cases and the available literature assiduously, and thus became quite proficient. Eventually a graduate here and there appeared upon the scene. As these qualified men proved their superiority, and their worth became recognized, they gradually displaced the existing practitioner in the treatment of sick animals. It has been a continuous contest between the graduate and the non-graduate with the former ever and increasingly in the ascendancy.

The legislative enactment of 1895, requiring that one desiring to enter practice in this State shall be a graduate, shall have had a three-years' course at a recognized veterinary school, and shall successfully undergo examination by the State Board of Veterinary Medical Examiners, effectually puts up the bars against the admission to the profession of any unqualified man. This leaves the State with about 400 graduate veterinarians, which number is gradually increasing, and about 1000 non-graduates, which number is rapidly decreasing. It is safe to predict that within twenty-five years the non-graduate veterinarians will have so dwindled away as to be virtually a nonentity, and the conditions will have so matured that these men will have reached the end of their usefulness. Also the number of graduates will have so increased as to be able to attend to all the demands of the people upon the profession. Until that time we will not be ready to dispense entirely with non-graduate service. The gradual process of evolution now properly established will finally terminate in a beautiful adjustment in the Keystone State.

There are numerous influences which continually operate to expand the field for the competent veterinarian. As the non-graduates of this State, about 1000 in number, retire from practice, at least 500 vacancies for graduates will be made. Allowing twenty-five years for their retirement would create places each year for twenty graduates.

It must also be noted that it is not alone the elimination from practice of the existing practitioners that increases the demand for

skilful veterinarians ; but the ever-increasing live-stock industry, the awakening of the people to the expediency of better service, the requirements of the various States and the nation for skilled veterinary service, the positions constantly being created in institutions of learning for teachers of veterinary science, are all factors tending to render the prospect bright. Certainly schools of veterinary medicine, and young men undecided as to what profession to enter, ought to find much encouragement in these observations.

Practice of veterinary medicine in Pennsylvania is on as good basis as that of any other State, while it far surpasses the majority. Those States which have inefficient laws regulating the practice of veterinary medicine, or which lack such law, should make its enactment a matter of the gravest consideration. So long as men are allowed to practice at will, because there is no law to specify who shall and who shall not engage in practice, no advance will be made toward the standard which is requisite in order to place veterinary medicine on a parity with the other professions. There is a tendency for unqualified men to remove themselves from the States where they are under the ban of the law to those States where they are not so restricted. Finally, the States which are the last to make such legislation will be surfeited by incompetent men presuming to be capable of coping with the various animal ailments.

It will be argued that the non-graduate is fully able to deal successfully with all problems of pathology and therapeutics which commonly present themselves. However, this is a mistake. The man who has had a thorough training in a good school is the only one whom it is wise to employ. The value of our live-stock is too great to entrust its care to any but the most skilful. The truth that the best is the cheapest must gain recognition from all who will give the subject sufficient thought. This is an age of improvement, and we must look for it here as in other departments of our national economy. Such legislation not only is of value to the veterinarian, but great benefit will also accrue to the people at large. It is demanded by broad considerations of public policy.

It is estimated that preventable diseases of animals cause losses in Pennsylvania of \$6,000,000 to \$10,000,000 annually. This great drain on the wealth of the State can be repressed only by placing the care of the health of animals entirely in the hands of well-equipped men.

Not of any less importance is the fact that the veterinarian must assume an ever-increasing responsibility in regard to the health of

our human population. Many diseases are communicable from the animal to the human species, and the only way in which these conditions can be met is to properly deal with such diseases in the lower animals. Further, the complexity and technicality of the problems which these ailments present for solution make it imperative that in order to deal with them a man must have the most liberal scientific education.

Public health organizations everywhere are realizing that collaboration between the practitioner of human medicine and the veterinarian is the most direct way to the determination of methods for prevention of many diseases; consequently, we find members of these two professions working side by side, each recognizing the essentiality of the other.

Every State owes its people some legislation leading to the gradual elimination of incompetent veterinarians and the placing of veterinary medicine and sanitation in the care of qualified graduate veterinarians.

SURGEON-Major Semple, attached to the Army Medical School at Netley, England, recently scratched his hand with a hypodermic needle when immunizing a horse for the preparation of serum against Malta fever. Shortly after this he developed the symptoms of the fever, and his blood when examined gave a typical reaction of the micrococcus of Malta fever when diluted 1-1000. As an act of poetic justice, the horse which he was immunizing has been bled, and has supplied two injections of its serum into the immunizer. The patient is responding to the treatment and gives promise of speedy recover.—*Medical News*.

A Bandera County, Texas, stock-raiser is the owner of a mare mule with a sucking colt.

The well-known Chestnut Hill Stock-farm of Mr. Mitchell Harrison, near Philadelphia, met with the great loss by fire of all its barns and sheddings for horses, early in November. Fortunately all the live-stock were saved, including the great hackney stallion Wildfire, with many of his get. Mr. Harrison will at once rebuild, and will construct the most complete sanitary buildings possible, in order that the best system of light, ventilation, and drainage may be secured. Mr. Harrison has retained the services of Prof. Leonard Pearson, whose experience and advice will be utilized in preparing the plans and completing the construction of the building.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS, PH.D.,
PRINCETON, N. J.

ATTEMPT TO EXTERMINATE MICE BY MEANS OF THE SHREW-MOUSE BACILLUS. By S. S. Mereshkowsky, St. Petersburg.—Out of four kegs of barley-meal and two litres of liquid culture, Mereshkowsky made a dough, out of which 2000 little lumps were prepared. The culture of the shrew-mouse bacillus was developed for three days at a temperature of 35.5° C. These little lumps were devoured as greedily by the mice as wheat or corn.

During the harvest, while the grain was standing in shocks in the field, Mereshkowsky placed eight lumps in each shock. Two days later all these lumps had disappeared. Three days later the 250 shocks were opened, all the dead mice collected and all the live ones caught. A bacteriological examination gave the following result :

	Total.	Infected.	Uninfected.	Per cent. of infected.
House-mice	36	34	2	94
Field-mice	36	22	14	61
Wood-mice	15	12	3	80
Total	87	68	19	78

The percentage of dead animals was, in the case of field mice, 32 per cent.; house-mice, 29 per cent. ; and wood-mice, 42 per cent.

II. On a second trial only four little lumps were put into sixty-two shocks, with the following result :

	Total.	Infected.	Per cent. of infected.
Field-mice	85	36	42
House-mice	14	6	43
Wood-mice	12	9	75

Some seventy-five of these experiments were made, and the per cent. of infected mice steadily decreased, especially that of the house-mice, which sunk from 94 per cent. to 43 per cent. This fact was explained by the circumstance that the owner of the farm had ten dogs which received no regular feed and lived chiefly upon mice. This was confirmed by the fact that no dead mice were found on the outside of the shocks.

Mereshkowsky found that a second infection with the lumps should not be made until the end of twelve days, as it cannot be determined before that period whether all the infected mice have died. The bacillus has the same destructive effect upon rats, as was shown by examination, and the virus was often transmitted to the young, supposedly through the skin of the ovaries. Mereshkowsky comes to the conclusion that the bacillus taken from the shrew-mouse can be used for the extermination of the mouse-pest, yet the results will not be so rapid, because the number that can be infected is small compared with the whole number. It would, therefore, be advisable to infect all the places : fields, barns, cellars, etc., which are infested with mice.—*Deutsche Thierärzt Wochen-schrift*, Jan. 30, 1897.

REGULATIONS AGAINST CATTLE-TUBERCULOSIS IN SWITZERLAND.—On July 24, 1896, the Bundesrath decided to introduce tuberculin as a diagnostic means of exterminating tuberculosis. Further regulations relating to the same have lately been enacted. Tuberculin is to be distributed to the canton authorities free of charge. In order to guard against injurious changes in the tuberculin itself the orders for it must be commensurate with the actual need, and not sent in too long beforehand. The tuberculin is delivered ready for use in doses of three, four, and five cubic centimetres. In the orders it must be expressly stated how many doses of each kind are desired.

On the part of the canton authorities the tuberculin is to be given only to *qualified* veterinarians, the latter being authorized to administer the same and to report as to the results obtained.

As soon as a cattle-owner desires inspection for his cattle, the same must be applied not to individual animals, but to all cattle over six months old that the farmer possesses. Every animal that in consequence of tuberculin injection shows a rise in temperature of 1.5° or over is to be declared tuberculous, and to be marked by a triangle on the tip of the right ear. Tongs for this purpose are furnished by the Agricultural Department.

The costs of this tuberculin vaccination is to be met by the various governments.

It is encouraging that the use of tuberculin as a diagnostic is being consistently developed in Switzerland. In Germany its use is still confined to certain commercial centres where large importations of cattle are received from abroad.—*Idem.*, Feb. 6, 1897.

EXTRAORDINARY LARGE NUMNER OF "CYSTICERCUS BOVIS" IN A CALF LUNG.—As *cysticercus bovis* usually does not occur in large numbers, the present case is of especial interest. Everywhere on the lungs bright coffee-brown specks were visible, the centres of which were transparent and raised a little, and which showed a diameter of four millimetres. The microscopical examination showed that it was a case of *cysticercus bovis*. These parasites were found in the other organs, as follows: Heart, 7. In the liver a countless number beneath the serous coating of the front surface. On the tongue, 2. On the masseter, 3. On the muscles common to the head, neck, and arm, 1. On the lower shoulder-muscle, 3. Internal oblique abdominal muscle, 2. On the muscles of the thigh, a few. The diaphragm, spleen, kidneys, abdominal wall, and brain were free.—*Idem*.

BLEEDING WITH THE HOLLOW NEEDLE.—By M. Casper. In No. 13 of the *Berliner Thierarztliche Wochenschrift*, Professor Dieckerhoff describes a new process of bleeding in a manner which leaves the impression that this method is his discovery. For the protection of personal interests, and to state clearly the point at issue, I feel compelled to make the following reply: Already, since the year 1891, in procuring blood for the purpose of the serum at the Berlin Pathological Institute, I have conducted the blood out, in the case of larger and smaller animals, by means of a small hollow tube (canulus), which Hauptner made according to my instructions. The hollow needle used by Dieckerhoff differs from this only very slightly and very unessentially. My method was very soon adopted in Koch's Institute for Infectious Diseases.

At a meeting of the Kurhessiun Veterinarians I gave the following description of the same: I have the neck below the point of puncture compressed with a cord, then I cleanse the skin thoroughly with alcohol, and always keep the hollow needle or canulus in absolute alcohol. Then I stick the needle with a powerful thrust into the vein. The blood comes out in a bow-shaped stream, but cannot come in contact with the hand; from behind I draw out the needle while holding back the skin with two fingers of the left hand, and bleeding ceases almost immediately. In this manner I have let blood more than a thousand times without having had a single unfortunate result. I have also at times punctured the carotid, which can be easily recognized in the bright red color of the blood and through the pulsations in the stream itself.

In this case a large and hard swelling follows, but without injurious consequences, disappearing after a few days.

I can recommend this method with a good conscience to my colleagues. It can easily be performed, and looks more elegant and less cruel than bleeding with the lancet. In the case of cattle it is not so good, because the skin is so thick and the needle is hard to stick in.

In September, 1896, I showed this method to twenty colleagues, among them Prof. Dieckerhoff, who seemed much pleased. But in my innocence I did not suppose that he would afterward take occasion to describe the same as his discovery, without even mentioning my name.—*Deutsche Thierarzt. Wochenschrift*, April 10, 1897.

EXTIRPATION OF SPLENIC FEVER BY AGRICULTURAL REGULATIONS.. By LYDTIN.—It is always encouraging to hear the veterinarian praised on the part of agricultural associations. For this reason the report which comes from the last session of the Agricultural Council for Alsace-Lorraine is of great interest. By doing away with the open pasturing of cattle splenic fever in the community of Illhausern has been very nearly suppressed. Formerly wild animals helped to spread the disease, and especially the carcass itself, which was only covered with dirt and often came to lie in surface-water; likewise flies and midgets carried the germs of the disease from such decaying carcasses. The district veterinarian Schield, of Rappoltsweiler, therefore deserves great credit for suppressing splenic fever by doing away with open pasturing in spite of popular opposition and of heavy immediate loss to his profession. His service, however, is to-day generally recognized, and he has saved the Government much money. We congratulate him on this event.—*Idem*.

SELECTIONS.

MILK A VEHICLE FOR MICROBES; NEEDED LEGISLATION.—The number of deaths caused annually by diseased milk and milk-contamination is sufficiently great to warrant legislative interference. The following points should be noted:

1. The need for setting up some authority, central or county, having in its charge the dairy farms and milk-shops of the country

or county, with adequate power of inspection and regulation of all premises on which milk is produced, manipulated, or sold.

2. Statutory inspection by medical officers of health of all such premises in their districts, with right of entry at all reasonable hours and on all occasions, with power of inspection of all cattle, apparatus, utensils, etc.

3. Power to local authority immediately to prohibit the sale of milk reported by their medical officer of health to be causing, in his opinion, disease in human consumers, the dairymen, etc., interested having the onus of showing within twenty four hours valid reason why the prohibition should be removed, and the producing of reasons to call for reimbursement of the amount of loss sustained by the action of the local authority.

4. Certain diseases (to be defined and, if need be, added to) of teats and udders of milch-cows to be scheduled as infectious diseases of cattle for the purpose of securing penalty on all persons selling milk secreted by cattle so suffering.

5. All persons keeping milch-cows, or selling milk, to seek registration under local authority, under pain of heavy penalty for neglect of this duty.

6. All such persons to be under obligations to furnish the local authority, at intervals, with complete or supplementary or amended lists of customers, wholesale or retail, at a specific rate of payment.

7. The cubic space per cow to be fixed, a minimum being 800 feet.

8. The manufacture of ice-cream to be placed on a basis of safety to its consumers, in respect of production, materials, place of manipulation, storage, etc.

9. No milk to be allowed to be used for food from a shed in which a cow is housed while suffering under a scheduled disease, even though the cow producing the milk be not herself visibly so suffering.—*British Medical Journal*.

THE Annual Convention of the National Master-shoers' Protective Association was a complete success. The St. Louis Association of Veterinarians joined in the festivities of the craft.

Rabies and Texas-fever are among the reported diseases in New York during September. Drs. W. H. Kelly, of Albany, and V. A. Moore, of Ithaca, were directed to make the necessary investigation.

REPORTS OF CASES.

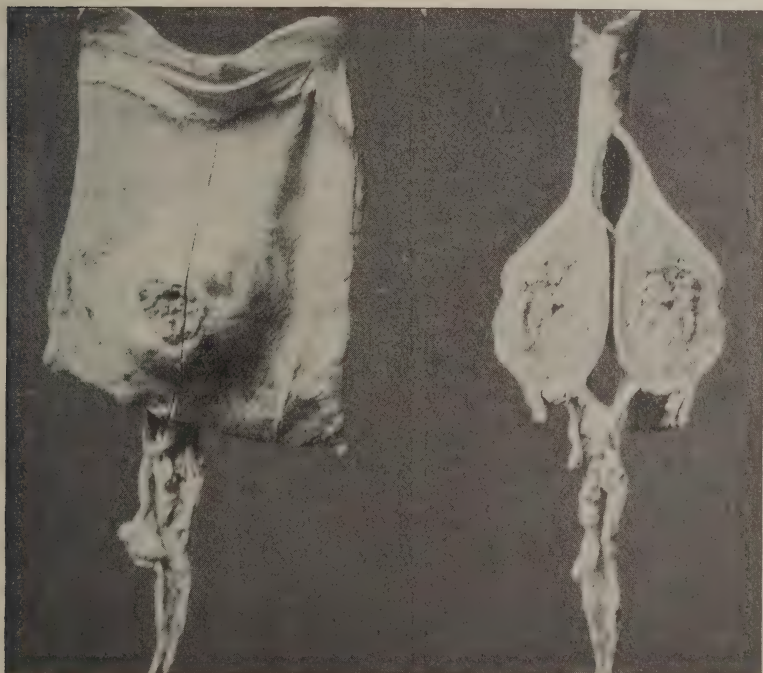
A CASE OF SPIROPTERA MEGASTOMA (RUD).

By S. Sisson, V.S.,
ONTARIO VETERINARY COLLEGE, TORONTO, CANADA.

THE subject of this note was a female donkey which had been condemned on account of a pelvic fracture involving the acetabulum. In demonstrating the case to the post-mortem class, a tumor was noticed projecting from the anterior face of the stomach.

FIG. 1.

FIG. 2.



View of mucous surface, showing ulcer.

Sectional view, showing thickened wall and caseous contents.

The omentum was adherent to it over a small area. On opening and cleansing the stomach the apparent tumor was found to be an intramural abscess, which projected somewhat further into the stomach than it did externally. The mucous membrane pre-

sented an ulcer on the summit of the abscess about 2.5 cm. (1 in.) in diameter, through which appeared a few *spiroptera*, partially embedded in the caseous pus which filled the abscess-cavity.

The measurements of the abscess were as follows: diameter, 7.5 cm. (3 in.); circumference, measured internally, 21.5 cm; externally, 23.5 cm.; thickness from within to without, 4 cm.

Although the writer has had an opportunity to examine several hundred stomachs, many of which presented spiroptera abscess, nothing of this magnitude has yet been met with. The history of the case for the two years previous was obtained without any symptoms of digestive derangement being elicited, and the general condition at death was excellent.

Friedberger and Fröhner (Zuill's trans.), i. pp. 275, 276, gives: "S. Megastoma produces in the *cardiac* portion of the stomach tumors from the size of a bean to that of a nut, provided with an opening and able to cause gastritis, colic, etc." So far as my experience goes they always seem to affect the *pyloric* portion of the stomach (as in this case) and do not seem to cause gastritis or any appreciable clinical signs of their presence.

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Cobbold: Parasites, London, 1879. Pp. 381, 383.

TWO INTERESTING FORMS OF LAMENESS.

By W. E. A. WYMAN, V.S.,

M'KILLIP VETERINARY COLLEGE—PRO TEMPORE, CLEMSON COLLEGE, S. C.

AMONG the cases exhibited at the Post-Graduate Clinic of the McKillip Veterinary College, the following two cases of lameness are of especial interest:

CASE I. *Disease of the head of the suspensory ligament (hind-leg).*—*History*: Over-exertion, traumatism, especially apt to occur in spirited animals, pullers, etc.; one or both legs may be involved.

Inspection: In the standing posture, all four legs are brought toward the centre of gravity. The fetlock of the affected leg shows more or less dorsal flexion. In very lame animals the lumbar region is arched, and the abdominal muscles are contracted. When walking and trotting a well-marked, swinging-leg lameness is seen. As the animal trots toward the observer the stifle appears prominent and the legs bowed. When trotting or walking by the observer an imperfect flexion of the hock, a shortened for-

ward stride, and at the moment the function of the supporting leg begins, that is as the animal plants the foot, the diagnostic excessive dorsal flexion of the metacarpo-phalangeal articulation becomes apparent.

Palpation: In the early stages nothing, or a badly-defined soreness, can be detected, later on a secondary periostitis and its characteristic symptoms appear.

CASE II. *Paresis of the flexor pedis perforans and perforatus (hind-leg).*—*History*: Falls and slipping; animals which become cast in the stable and struggle violently. The animal never recovers fully.

Inspection: While standing still or backing, nothing abnormal is manifest. As soon as the animal walks, trotting is impossible, especially upon slippery ground; the hock is flexed excessively, the foot unduly advanced, all parts from the fetlock down are pendulous, plainly noticeable as the function of the swinging leg is about to cease. Just as soon as the function of the supporting leg begins the heels are put down first, and at this moment the hoof slides back from two to fourteen inches, depending upon the severity of the attack, to be repeated at each step. This peculiar action improves greatly when the animal is changed from soft footing to rough ground allowing a good foothold. Cases of long standing only show a limited retraction as the function of the supporting leg sets in.

Palpation: Nothing abnormal.

In describing the various forms of lameness, the writer considers such a division as the history of the case, its inspection and palpation, more practicable from a clinical standpoint.

The total absence of a work on the clinical diagnosis of lameness of the horse, a subject of vital importance to all surgeons, may serve as an apology for the creation of a work dealing fully with this subject and to be submitted to the profession at an early date.

LYMPHADENOMA, OR HODGKIN'S DISEASE.

BY W. HORACE HOSKINS, D.V.S.,
PHILADELPHIA, PA.

THE subject of this exceptional condition was a collie dog—"Pharaoh"—five and one-half years old, the property of Mr. M. H. F., of Philadelphia, who had raised him from a puppy.

As a puppy he was delicate, and frequently suffered from gastric derangement and irritable skin-eruptions. The care of the animal was excellent, with outdoor daily exercise. The past two years his physical condition was exceptionally good, and his weight ranged around sixty pounds. In fact, he had taken on flesh to an unusual degree and seemed in every way strong and vigorous.

While sojourning in the country during the past summer the only thing noticeable about him was œdematous swellings of the region of the neck; these would disappear in great measure after a few days, and, with his long coat, would hardly be visible. On returning to the city early in October the swellings of the neck became more noticeable and persistent, and when seen, on October 5th, presented enlargements of the thyroids as large as a duck-egg. The thymus, with the accompanying œdema, was as large as one's fist; the pectoral and axillary enlarged, with much œdema along the sternum; the inguinal very much enlarged, with great œdema of the scrotal region and sheath; the temperature elevated; catarrhal discharge from the nose, distressed breathing, and great lassitude; the visible mucous membranes pale and anæmic; appetite good at times, but any exercise seemed to exhaust him. As carcinoma or tuberculosis was suspected, the use of iodide of potash was resorted to, with iron and quinine. On the 13th the distressed breathing became so pronounced that small doses of strychnia were prescribed, which abated the alarming conditions. There being no improvement in the general condition, he was removed to my Sanitarium on the 16th, for the purpose of testing with tuberculin, and the temperature taken for two days prior to injection with the hope of finding a period when it would more nearly approach normal. During this period it rose as high as $104\frac{3}{5}^{\circ}$ and the lowest point 103° ; was injected at 10 P.M. on the 18th, when his temperature was $104\frac{1}{5}^{\circ}$. During the succeeding twenty-four hours the temperature was taken at ten periods, during which time it ranged from 103° at 8 A.M. on the 19th to $104\frac{2}{5}^{\circ}$ at 2 P.M. of the same day, receding to $103\frac{1}{6}^{\circ}$ at 6.30 A.M. on the 20th, thus showing no reaction. A portion of one of the axillary glands was removed for staining and examination for evidence of tuberculois, but the result was negative. His condition grew rapidly worse, and death followed on the 21st.

Autopsy was held a few hours after death. Contents of thoracic cavity normal, save an anæmic appearance of muscular walls of the heart. The liver was very pale in color, spleen enlarged and its pulp liquefied. Intestines very white, anæmic, save the colon

and rectum, which were inflamed. Glands of abdominal cavity but slightly enlarged. The lower jugular region, pectoral, axillary, and inguinal regions were the seat of extensive dropsical effusion, while the glandular structures of these regions were hypertrophied to an enormous extent.

Sections of these glands were forwarded to Dr. Robert Formad, of the Veterinary Department of the University of Pennsylvania, who reported the absence of any evidence of tuberculosis, cancer, or sarcoma; further, that the preparations show only an unusual hypertrophy of the lymphatic structures, but no change or product abnormal to the gland, and constitutes that condition known as lymphadenoma associated with several diseases, often with blood-diseases.

Lymphadenoma, or Hodgkin's disease, has been described under various synonyms, among them pseudo-leukæmia, lymphadenosis, malignant lymphoma, anæmia lymphatica, adenoid disease, adenia, chronic recurrent fever (Ebstein), lineal lymphadenoma, where principal lesion noted is hypertrophy of spleen; multinuclear leucocytes, lymphatic leukemia of the glands, myelogenic leukemia, when a hyperplastic phenomena of the red marrow of the bones exists. It is described as an enlargement of the lymphatic glands, with progressive anæmia. The pathological lesions, a hyperplasia of lymphoid structures of the body, enlargement of the spleen.

It has been noted in the horse, ox, dog, pig, cat, mouse; not noted in sheep or goats. Nocard records a case in a cow, where the superficial lymphatic glands were enlarged, and diarrhœa in the later stages.

This case seemed more of the nature of pseudo-leukemia (malignant lympho-sarcoma), of which Frohner records cases in the horse and dog, tending to become chronic, and changing to true leukæmia.

In human pathology the disease is always noted as a chronic condition, usually lasting from two to two-and-one-half years, ascribed to debilitating influences, traumatisms, intermittent fever, syphilis. Symptoms vague: mucous membranes pale; weakness, lassitude, dyspnœa; temperature increased. Always chronic; and sometimes only recognized on autopsy. Prognosis always serious.

Treatment: arsenic, iron, tonics, rich food easily digestible. Termination always fatal.

TREATMENT OF PURPURA HEMORRHAGICA WITH
ANTISTREPTOCOCCUS SERUM.BY W. G. HOLLINGSWORTH, D.V.S.,
UTICA, N. Y.

Subject : Bay gelding. *History* : Convalescent from pneumonia, about ready for light work. Hygienic conditions of stable very poor.

Symptoms. First observed some small swellings on the extremities, which rapidly attained an unusual size, the peculiarly characteristic symptoms made diagnosis easy. The swellings, after a day or two, suddenly disappeared, and the animal evinced much uneasiness and pain, which was followed by loose, bloody discharges from the bowels. This condition was followed later by the temperature rising to 105° F.; pulse, 96; respirations, 36.

Treatment. The usual treatment was prescribed at the onset, but I determined to try Pasteur's antistreptococcus serum, and at once ordered some from their Chicago representative. On its arrival I at once proceeded to administer the same, as the condition of the horse was much worse, the temperature, respirations, and pulse all accelerated, pain marked, and flux of the bowel. To relieve the pain a hypodermic injection of morphine was given first, after which 10 c.c. of the serum was introduced, with instructions to repeat the latter dose every three hours until my return, with cannabis Indica as a soporific when in pain. These instructions were carried out by a very careful and intelligent attendant, and on my return, at 5 P.M. of the same day, I found the animal much easier. The same treatment was followed through the night, and at my morning call the next day the temperature had dropped to 103° F., pulse 50, respirations 20, and patient disposed to pick hay, but refused a bran-mash offered him. Ordered the 10 c.c. doses of serum every six hours and returned at night, when the temperature had receded to 100° F., pulse 50, and respirations 16, and anxious to eat; discharges from bowels better in appearance; no hemorrhage, and fecal matter tending to ball. The improvement was marked, and the frequency of the injection was gradually reduced until but one a day was given. The swellings after some days threatened to return, and the dose of serum was given every eight hours and the swellings gradually disappeared. The dose was reduced to two a day, then to one a day, for four days, after which I placed him on tonics. He had thirty-three doses of 10 c.c. each of the serum. Marked improvement followed the serum, so I decided to give it more extended trial, and have placed it in stock for future emergencies.

EDITORIAL.

THEY DON'T WANT OUR MEAT-PRODUCTS.

THE German Government's report for the six months ending July, 1897, will indicate an increased amount of trichinosis following the eating of American pork. Information seems to point strongly to the inaccuracy of this report, and that the pork raised in Germany and sold under the name of American pork is a much greater factor. This must be the true status of the situation, for the following reasons, well-known to every American veterinarian. First, that only a small percentage of trichinous pork is found under the most careful microscopical investigation by our Government experts. Secondly, the greater proportion of pork consumed in America is not inspected at all, and but very few cases of trichinosis are noted in any part of our country. Statistics of Boards of Health show it to be very rare, indeed. We note also the public clamor of the butchers of Berlin that they must have more protection from the American meat-products, because they cannot compete with them in price.

THE VALUE OF STATE LAWS.

WE are pleased to publish in this issue a retrospect of the laws of Pennsylvania relative to the practice of veterinary science, and to note the sure and steadily favorable results growing out of the same.

These figures and their significance have been prepared by a member of the present senior class of students of the Veterinary Department of the University of Pennsylvania, and, as a prospective practitioner of his native State, his deductions fully prove how valuable he considers these laws in the interest of future fully-equipped practitioners.

Many other States now overrun with non-graduates, quacks, and illiterate men, where no laws exist, and where no laws were desired that recognized any but graduates, will surely realize the wisdom of those who, in Pennsylvania, advocated the present laws that were destined to make this State a fruitful field for educated members of the profession in the future, which time has been already reached in less than ten years. The figures show a change of over twenty-five per cent. already in those registered under

the existing practitioner clause, and when a more careful examination of the records is made there will be found a much larger percentage.

Veterinarians will do well to gain an entering-wedge of legislation in every State, for its worth will be added to with each passing year.

MUNICIPAL MEAT-INSPECTION.

PHILADELPHIA'S initial meeting, in December, for better municipal meat-inspection, was a very important gathering, addressed by some of the ablest writers and exponents of a pure-food supply in our land. This meeting under the auspices of the Woman's Health Protective Association, now pledged to the accomplishment of this reform, will be followed by others under the direction of several other organizations, whose interest has been aroused in this subject, and now, with the promised aid from a large body of producers, consumers, health-boards, health-protective associations, medical and veterinary organizations, it is confidently hoped that the reform will be early inaugurated. The entire press of the city, lay and medical, is giving the movement a most encouraging support.

FOR BETTER MUNICIPAL MEAT-INSPECTION.

AN important meeting was held in Philadelphia on December 6, 1897, in the interests of an improvement on the prevailing system existing in this city. The meeting was held under the auspices of the Woman's Health Protective Association, and presided over by Mrs. John H. Scribner, president of the organization. In opening the meeting, the president expressed very earnestly the interests of their organization in this movement. She referred to the work of their sister organization in New York, that had accomplished many reforms there, of the visit made by a committee of the Philadelphia association to a number of the small private slaughter-houses, and the deplorable conditions found there, and pledged the aid of their organization in every way possible to remedy the existing evils.

Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, was then introduced. He spoke of the great work being done by this Bureau in meat-inspection for export and inter-state trade; of how exacting our foreign customers had become in this direction, and the good results that followed at home, and touched upon some of the important diseases for which protection was needed, and urged its need and importance all over the land.

Prof. R. S. Huidekoper, of New York, was then introduced, and, as one of those who for years had fully appreciated the inefficiency of the service in Philadelphia, urged its improvement. He spoke with much feeling as to the dangers, and referring to the system existing in Continental cities, he contrasted it with that prevalent in American cities, and forcibly pointed out the importance of this movement, and urged all present to interest themselves in improving the service.

Dr. H. D. Gill, Dean of the New York College of Veterinary Surgeons, was the next speaker, and the many dangers incidental to the preparation and care of meat for food were lucidly explained, and the many avenues of danger for its injury and of becoming an unwholesome food-product prejudicial to public health were very forcibly portrayed by the speaker. The duties of those charged with municipal affairs were pointedly referred to, and he hoped the movement inaugurated in Philadelphia would be successful and spread to many other cities.

Dr. A. W. Clement, of Baltimore, State Veterinarian of Maryland, in his remarks, spoke of the importance of this subject from a State point of view, and referred to the early attention given to attain these ends by the Hebrews and other sects. He looked for good results from the general discussion and agitation of the subject, and felt that the attention of the National Government to this subject was of much importance in educating our people to its need. The question of compensation by the Government was one that made difficult the solution of the question, but he thought this should be no barrier to its adoption in every large city.

Dr. Benjamin Lee, Secretary of the State Board of Health of Pennsylvania, gave an interesting account of the continued interest of the State Board in wholesome and pure food-products. He said that they had long appreciated the need of reform in the direction of greater safeguards around our meat-supply, and that the present movement would have the hearty co-operation of the State authorities, and hoped that it might spread to every city and town of this Commonwealth, that the good results flowing therefrom would better aid the great ends which such bodies as he was officially connected with, planned and worked to secure.

Dr. George Strawbridge, of the Philadelphia County Medical Society, spoke forcibly of the many reforms that every good citizen should be interested in, that call for solution in municipal government; of Philadelphia's need of a pure water-supply, a better-guarded food-supply, especially of meat and milk. He referred to

several of the important diseases that annually increase the death-rate beyond proper proportions, which are largely the outcome of impure milk and unwholesome meat. How essential these products were to our people at every stage of life. He referred to the attention given this subject in foreign countries, and how many municipalities had made central abattoirs a source of income to their cities, and lightened the burdens of everyone at the same time.

Miss Pope, of the Woman's Health Protective Association, gave a graphic account of what she had seen on a tour of some of our small slaughter-houses. She spoke of their unfavorable location, of the unsanitary surroundings, the general lack of cleanliness that prevailed about them; and of the many features that made it impossible in such places to prepare meat-products fit for food. Her remarks were fully coincided in by others of the visiting committee, and each of the speakers urged the members and everyone in attendance to array themselves in the battle for reform in our meat-inspection service.

Dr. Leonard Pearson, Secretary of the State Live-stock Sanitary Board of Pennsylvania, touched upon many features of this all-important subject; how great a flesh-consuming nation we are; how imperfect our city inspection-service is generally, save in New Orleans, La., and Montgomery, Ala.; how thoroughly this work is carried on abroad, and what centralized abattoirs have done for the producers and consumers in these cities, and, contrasting it with Philadelphia's imperfect system, made everyone feel how imperative was the need of prompt and thorough reform in our city.

Dr. A. C. Abbott, of the Health Department of the city, in speaking of the needed reform, said it was of the greatest importance and should receive the very earnest support of every good citizen.

Dr. W. Horace Hoskins closed the consideration of the subject by congratulating Philadelphia, in that the city possessed so aggressive a body of earnest, working women as the Woman's Health Protective Association was composed of; pointing with pride and due appreciation of the reforms they had already accomplished, and others they were leading to victory, all in the welfare and interest of every soul in this great community, and that he knew full well that their organization and its members, now pledged to further this movement, would be a tower of strength in adding this as an accomplished reform as another trophy upon their proud record of earnest, aggressive work in every good and beneficial movement for our people.

NEW PUBLICATIONS.

A TEXT-BOOK ON HORSESHOEING. By A. LUNGWITZ, Director of the Shoeing School of the Royal Veterinary College, Dresden, Germany. Translated from the eighth German edition by JOHN W. ADAMS, A.B.V., M.D., Professor of Surgery and Lecturer on Shoeing in the Veterinary Department of the University of Pennsylvania. Philadelphia: J. B. Lippincott Company.

A WORK that has successfully passed through so many editions in its original language leaves but little to say for it that has not been oft repeated of its merits and worth. Its greatest need was that of being placed at the command of the English-speaking world, and this has been done in an excellent manner by Prof. Adams, and brought out in attractive shape by the Messrs. Lippincott, whose touch to a new book always gives it value and adds much to its pleasing appearance.

In addition it may be equally well said that what it contains is of the most needful kind, and from student to veterinarian, from apprentice to master, it will be of more service than any book of its kind yet published in the English language. Of the several books already published on horseshoeing in our country, it may be said of them as a whole, that they are based upon one man's personal ideas and deductions, and are not safe or valuable as books of instruction.

From the objects of shoeing, the anatomy of the foot, its relation to the entire limb, the shoeing of healthy feet, hoof care, the foot lesions that require pathological shoeing, it is replete with valuable fundamental knowledge and instruction that must be a great factor in the better education of the shoeing craft in the future, and wipe away many false notions and prejudices that have been handed down in this occupation for many generations. We are sure there await it a wide sale and a generous appreciation at the hands of a body of craftsmen who are advancing this occupation to a much higher and better standing in this country than it has ever occupied before.

VETERINARY OPHTHALMOLOGY. By GEORGE G. VAN MATER, M.D., D.V.S. Published by W. R. Jenkins, of New York.

THIS contribution to veterinary literature will, we trust, lead to one more comprehensive and better fitted to meet the requirements

of the everyday practitioner. While it has many valuable points, it has followed too closely the lines of human pathology, anatomy, and physiology. The many important diseases of the equine and canine species afford a field of much study and importance, and we trust that this book may be followed by one more extensive and more closely allied to comparative pathology of the lesions of this important member. The book is excellently printed, freely illustrated, and issued in very acceptable form by this well-known publishing-house.

The Philadelphia Medical Journal made its initial bow to the medical world on January 1st. Its typographical appearance is pleasing to the eye. Its well-filled pages of interesting matter from some of the ablest exponents of clinical medicine, with a very well-prepared digest of the contents of the leading medical and surgical journals at home and abroad, matters of general interest carefully collected, promise for its readers a periodical of high merit and usefulness. Its aims and purposes, tersely but clearly stated in its editorial columns, are for a higher and purer practice of legitimate medicine, and "to aid in certain greatly needed reforms, among others to organize and systematize the great coming war against infectious diseases, and especially against tuberculosis, which must be stamped out, utterly eradicated from civilized communities. Veterinary medicine has become a noble and beneficial calling. A national department of public health." These aims and purposes will insure it a support in every way worthy of the projectors of this new journal, many of whom are counted among the foremost in every reform, scientific, educational, professional, political and commercial in our city, State and nation. There is room for it.

The *Veterinary Blue-Book*, now announced for publication on January 10th, will prove a very valuable contribution to the busy veterinarian. The large amount of everyday information it will contain will make it valuable for consultation and ready reference, that insures it a welcome upon the desk of every progressive member of the profession.

CONTROL WORK.

National.—Much interest has been aroused by the aspect of bureau affairs at Kansas City, Mo., where some dissensions between the inspectors of the Bureau of Animal Industry relative to

the condemnation of certain animals in the abattoirs there, culminating in charges preferred against one of the packers on the ground of attempting to bribe one of the inspectors. The matter has been taken to the Federal grand-jury, and attorneys for the packer have entered a demurrer on the grounds that the law establishing inspection is unconstitutional, and consequently said inspectors are not United States officers and that the inspection is unlawful. This is a similar ground to that which was taken during the period when contagious pleuro-pneumonia was being investigated, which was finally settled in favor of the Government.

Minnesota.—The State Board of Health, after a conference with the Secretary and Director of the Agricultural Society, prescribed the conditions under which swine might come to the Minnesota State Fair last fall; the swine were inspected upon arrival and daily during the fair week, because of the prevalence of hog-cholera in the State. No disease appeared among the swine upon the fair-grounds, and it is hoped that the exhibit this year will not result in any increased spread of hog-cholera.

Pennsylvania.—The alarming condition of the State Treasury resulted in the announcement, at the close of November, that no further appropriations would be made to the Live-stock Sanitary Board, and its work stopped. State Veterinarian Pearson, fully realizing the dangers of this condition, and how serious a matter to the live-stock interests of the State, and the false economy such a move would prove, asked at once for a meeting of the board, and presented the situation that would follow, referring to the progress of protective work among the live-stock owners of the State, who were joining in every effort to aid the authorities in freeing our State from the disastrous and dangerous diseases to man and our commercial interests, and succeeded in having an appropriation made for the next three months' work. He stated that 406 herds had been examined the past six months, numbering 5368 cattle, of which number 658 were found diseased and destroyed. That the percentage of diseased ones had fallen from 20.2 per cent. to 12.2 per cent., showing that the worst centres of disease had been discovered and removed.

New York. Work at the St. Lawrence State Hospital showed that out of a herd of 114, some 82 were found tuberculous. The State Board of Health has examined some 948 others, a number of which were found diseased, and destroyed.

LEGISLATION.

PENNSYLVANIA.

REGULATIONS GOVERNING THE DRIVING OR SHIPPING OF DAIRY-COWS AND NEAT-CATTLE FOR BREEDING PURPOSES INTO PENNSYLVANIA ON AND AFTER JANUARY 1, 1898.

The attention of cattle-dealers and shippers and owners is called to the following law and the rules for enforcing the same :

An act to protect the health of the domestic animals of the Commonwealth of Pennsylvania.

SECTION 1. *Be it enacted, etc.,* That the importation of dairy-cows and neat-cattle for breeding purposes into the Commonwealth of Pennsylvania is hereby prohibited, excepting when such cows and neat-cattle are accompanied by a certificate from an inspector, whose competency and reliability are certified to by the authorities charged with the control of the diseases of domestic animals in the State from whence the cattle came, certifying that they have been examined and subjected to the tuberculin-test and are free from disease.

SEC. 2. That, in lieu of an inspection-certificate as above required, the cattle may be detained at suitable stock-yards nearest to the State line on the railroad over which they are shipped, and there examined at the expense of the owner ; or cattle as above specified from points outside of the State may, under such restrictions as may be provided by the State Live-stock Sanitary Board, be shipped in quarantine to their destination in Pennsylvania, there to remain in quarantine until properly examined at the expense of the owner, and released by the State Live-stock Sanitary Board.

SEC. 3. The State Live-stock Sanitary Board is hereby authorized and empowered to prohibit the importation of domestic animals into the Commonwealth of Pennsylvania, whenever in their judgment such measures may be necessary for the proper protection of the health of the domestic animals of the Commonwealth, and to make and enforce rules and regulations governing such traffic as may from time to time be required.

SEC. 4. That any person, firm or corporate body violating the provisions of this act shall be deemed guilty of a misdemeanor, and upon conviction shall, in the proper court of the county in which such cattle are sold, offered for sale, delivered to a purchaser, or in which such cattle may be detained in transit, for each offense, forfeit and pay a fine of not less than fifty dollars or more than one hundred dollars, or be punished by imprisonment for not less than ten days, and not exceeding thirty days, either or both, at the discretion of court. Such person, firm, or corporate body shall be liable for the full amount of the damages that may result from the violation of this act.

SEC. 5. The State Live-stock Sanitary Board is hereby charged with the enforcement of this act, and is authorized to see that its provisions are

obeyed, and to make, from time to time, such rules and regulations as may be necessary and proper for its enforcement.

SEC. 6. That this act shall go into effect January first, one thousand eight hundred and ninety-eight.

Approved May 26, 1897.

Rules for the enforcement of the Act of May 26, 1897 :

Dairy-cows and neat-cattle for breeding purposes may be brought into Pennsylvania from other States only in accordance with one of the three following provisions :

1. The cattle may be examined and tested with tuberculin in the State from whence they come by an inspector whose competency and reliability are certified to by the authorities charged with the control of the diseases of animals in that State. Special blanks for reporting upon such examinations will be furnished by the State Live-stock Sanitary Board upon application. Cattle thus examined, found to be free from disease and brought into Pennsylvania, shall remain in the possession of the person or persons who own them when brought into Pennsylvania until the inspection-reports have been approved by a member of the State Live-stock Sanitary Board or by an agent authorized to approve such reports. After such approval the cattle can be disposed of without restriction.

2. Dairy-cows and neat-cattle for breeding purposes may, if shippers so elect, be examined and tested with tuberculin at suitable stock-yards nearest to the State line on the railroad over which they are shipped. Such examinations are to be made by inspectors approved by this board and at the expense of the owner of the cattle.

Cattle so inspected shall be marked with a suitable metal tag, or shall be accurately described, so that they can be reliably identified, and a report on the examination and test, with directions for identification, shall be submitted without delay to this board.

3. Dairy-cows and neat-cattle for breeding purposes may be brought into Pennsylvania *without previous examination only under the following conditions :*

(a) Notification to the State Live-stock Sanitary Board that it is proposed to bring certain dairy-cows or neat-cattle for breeding purposes into this State. Such notice must be accompanied by the number and a full and accurate description of the cattle, the names and addresses of the owner and consignee, the date upon which they are to be brought into the State, the route over which they are to be driven or shipped, and the destination.

A blank form to use in rendering this report will be sent upon application to the State Live-stock Sanitary Board.

(b) Such cattle shall remain in strict quarantine during transit and after they have arrived at their destination until they have been examined and tested with tuberculin by an inspector approved by this board. Under this quarantine it is required that the cattle shall be kept apart from other cattle, that they shall remain in the possession of the person or persons who bring them into this State, and that their milk shall not be sold or used without previous sterilization by boiling.

Dairy-cows or neat-cattle for breeding purposes brought into Pennsylvania under this provision that are found upon examination or test to be

tuberculous, shall be strictly isolated and quarantined, their milk cannot be used for any purpose whatever without previous sterilization by boiling, and they shall not be moved to other premises excepting for slaughter. No compensation shall be allowed for such cattle.

Approved by the State Live-stock Sanitary Board at Harrisburg, Pa., November 5, 1897.

LEONARD PEARSON,
Secretary.

GLEANINGS.

Dr. J. J. Drasky, of Crete, Nebraska, reports successful results in treating "Stricture of the Teat" with electricity.

One of the Boston Fire Department's horses, after fifteen years of continuous service, has been pensioned off, and will enjoy the balance of his days in peace and amid plenty.

A recent number of *The Breeder and Sportsman* has the following paragraph :

Dr. Isaac W. O'Rourke, city veterinarian of San Francisco, has discovered a new disease among horses. It appeared only recently, but is spreading over the State with remarkable rapidity, particularly on the lands adjoining the San Joaquin and Sacramento Rivers. Dr. O'Rourke went to Tubbs' Island, on the San Joaquin River, last Wednesday, to inspect two hundred horses belonging to William Tubbs, the San Francisco cordage manufacturer. He found fifty of the animals suffering from the mysterious disease. It manifests itself in the form of abscessed swellings on different parts of the body. Some of these attain an enormous size. So far the number of deaths resulting from the malady has been small. It is Dr. O'Rourke's opinion that the disease grows out of fly-bites, and was introduced there by foreign stock of the poisonous fly, which is a stranger in California, is smaller than the common house-fly, and yellow in color. For the treatment of the disease the veterinarian recommends compound camphor liniment.

One of the most curious trades extant is that of a man in Berlin who gets a living by breeding rats for vivisection purposes.

Horses cannot be hired at any price in Whitman County, Wash., where 1,500,000 bushels of grain were harvested in one week recently. The grain was valued at \$1,050,000.

SOCIETY PROCEEDINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK
COUNTY.

THE Association was called to order at 8.30 o'clock, on Wednesday, December 1, 1897, at the New York Academy of Medicine, by the President, Dr. Huidekoper. The following members responded to roll-call: Brether-ton, C. C. Cattanaeh, J. S. Cattanaeh, Delaney, Ellis, Farley, Huidekoper, Hanson, MacKellar, Neher, O'Shea, Robertson, and Ryder—13.

The committee appointed by the President to search the register in reference to the qualification to practice in New York County of Messrs. Gren-side and Hingston, not being present, President Huidekoper reported that Hingston was not eligible to qualify by virtue of the penal code, he having been guilty of a felony.

The following communication from Dr. John J. Cattanaeh was next read by the Secretary :

DR. R. W. ELLIS

Dear Sir : As I am about to retire from the profession, would beg of you to hand in my resignation to the society.

Very truly yours,

JOHN J. CATTANAEH.

Moved and seconded that the resignation be accepted with the regrets of the Association ; carried.

Next in order was the election of officers for 1898. Nominations were as follows :

For President, Dr. Huidekoper and Dr. Bell ; moved and seconded, nominations close ; carried. Vice-President, Dr. Robertson, Dr. Hanson ; moved and seconded, nominations close ; carried. Treasurer, Dr. C. C. Cattanaeh, Dr. Ryder, and Dr. Hanson ; moved and seconded, nominations close ; carried. Secretary, Dr. Ellis ; moved and seconded, nominations close ; carried.

Result by ballot for first three offices : Dr. Huidekoper was elected President ; Dr. Robertson, Vice-President, and Dr. Hanson, Treasurer. In election of Secretary, it was moved and seconded that the By-laws be suspended and the election declared unanimous ; carried.

Next business in order was the Treasurer's report. The retiring Treasurer, Dr. C. C. Cattanaeh, submitted the following report for the two years during which he had served the Association in that office :

February, 1896, balance received from former Treasurer,	\$13 18
Received from Secretary p.	534 00
	<hr/> \$547 18
Expenditures amounting to	524 90
	<hr/> \$22 28

Appended to this was an itemized list of the expenditures.

Moved and seconded, that the report be accepted ; carried.

Dr. Neher recalled a case reported by him some time ago, which he had diagnosed as purpura hemorrhagica, which he said was entirely wrong, as he has since had evidence that the conditions found were due to traumatism. Remarks by members.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

MASSACHUSETTS VETERINARY ASSOCIATION.

THE regular monthly meeting was held at 19 Boylston Place, on Wednesday evening, October 27th. President Winchester called the meeting to order at 8 o'clock. Members present: Drs. Lee, Lewis, McLaughlin, Parker, Pierce, Soule, Stickney, Williams, Winchester, Winslow. Minutes of previous meeting were read and approved. Drs. Albert A. Etienne and Clarence E. Burchsted were elected members of the Association.

Drs. Soule, McLaughlin, Winslow, and Pierce reported interesting cases.

The subject of a State veterinary law was fully discussed, and a committee was appointed to draft a bill and report at the December meeting.

HENRY S. LEWIS,
Secretary.

THE MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

THE annual meeting was held on December 8th in the lecture-room of the Kansas City Veterinary College. A fair number of members were in attendance. Among other matters of interest, Dr. R. H. Harrison reported a case of "Rumenotomy" and one of "Rabies." Dr. Sihler a case of "Nasal Polypi," with a novel operation for its removal by making an incision into the trachea, larynx, and pharynx. A paper on "Pericarditis in Cattle," with a number of records of cases, was presented by Dr. R. C. Moore. "Wounds and Injuries to the External Ear" was the subject of a paper by Dr. R. P. Steddom. These reports and cases excited a great deal of interest and were freely discussed by the various members.

ONTARIO VETERINARY MEDICAL ASSOCIATION.

THE annual meeting was held on December 24, 1897, at the Veterinary College. Major Lloyd, of Newmarket, was in the chair, and there was a fair attendance of members from the different parts of the Province. At the morning session the usual routine business was disposed of, and Mr. C. L. Smith, of Brantford, was elected a member.

When the afternoon meeting opened, Mr. W. J. Wilson drew the attention of the Association to a requisition by the Canadian Humane Society to Parliament, asking that the docking of horses' tails be prohibited except by a veterinary surgeon or by a student acting under the immediate orders of a veterinary surgeon. The Humane Society set forth that it was not possible for them to hope to obtain legislation at present prohibiting this practice entirely, but they desired to have a law passed which would make the pain of the animals as little as possible. The meeting indorsed the intention of the petition.

Attention was drawn by Mr. C. Elliott, of St. Catharine's, to the appoint-

ment of Lieutenant-Colonel McCrae to go through the Province and instruct farmers in the disease of tuberculosis in stock and the use of tuberculin. Why, he asked, did not the Government appoint Prof. Reed, of Guelph Agricultural College, who, the speaker said, had plenty of time to discharge such duties? The reason was that this was a first-class opportunity to give Colonel McCrae a job. The speaker said that he would not, and he did not think the profession would, indorse such an appointment, especially when there was a veterinary college with a number of thoroughly competent professors.

Mr. J. E. Blackhall, of Clinton, was very emphatic in his condemnation of the appointment of Colonel McCrae to this position. He considered that Hon. John Dryden had by the appointment "thrown down" the veterinary profession. He considered that unless a bill could be introduced and engineered through the House by some private member cold water would still continue to be poured on the back of the profession.

Mr. W. Gibb, of St. Mary's, said that Hon. Mr. Dryden had broken aloof from giving countenance to the veterinary profession by his action, and he for one was not disposed to submit tamely to it.

Mr. W. J. Wilson, of London, was inclined to think that the putting of tuberculin into the hands of the farmers in the way it would be if the proposal of the Government were carried out would not be in the interest of the live-stock trade of the country. The tuberculin could be used so as to deceive the Government inspectors and eventually destroy reliance in the stock of the Province.

After some further discussion a committee, composed of Messrs. Martin, Sisson, Cowan, and Elliott, was appointed to draft a resolution in regard to this matter.

The election of officers was then proceeded with, and resulted as follows: President, S. Sisson, Toronto; First Vice-President, W. J. Wilson, London; Second Vice-President, J. E. Blackhall, Clinton; Secretary-Treasurer, C. H. Sweetapple, Toronto; Directors, W. Steele, Stratford; G. W. Coulter, Weston; H. S. Wende, Tonawanda; W. Cowan, Galt; Orr Graham, Port Perry; W. Gibbs, St. Mary's; J. Wagner, Tavistock; E. Daly, Sutton. Delegates to Western Show Association, J. H. Wilson, London; J. D. O'Neil, London. Delegates to the Industrial Fair at Toronto, Dr. Andrew Smith and President Sisson. Auditors, J. D. O'Neil and C. Elliott, of St. Catharine's.

The resolution of the special committee regarding the appointment of Colonel McCrae was then read and adopted unanimously. It was as follows: "That the tuberculin-test requires to be safeguarded by certain precautions not possible to those without professional experience; that it is not in the interest of farmers of the Province to have any person authorized to instruct them in the use of tuberculin as a test for tuberculosis, as it is liable to create an unnecessary alarm concerning the health of the cattle of Ontario; that a continuation of the present methods will bring the tuberculin-test into disrepute, for the following reasons, namely, that animals destined for shipment to the United States may be injected with tuberculin by the owners or dealers, and subsequent tests by the Dominion veterinary inspector rendered both useless and deceptive, paving the way for fraud, and consequently injuring the live-stock trade of the country. If such appointment as proposed above were necessary, we disapprove of the action

of the Minister of Agriculture in appointing Lieutenant-Colonel McCrae to that position instead of a duly qualified veterinary surgeon.

The report of the Secretary-Treasurer showed a favorable condition of the finances.

THE GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

THE final preliminary meeting of this Association, to complete organization, was held in Rochester, December 9, 1897, when a suitable constitution and by-laws were presented and accepted, and a committee appointed to secure the proper incorporation of the society. The President delivered an instructive and interesting address. Several of the members exhibited specially interesting specimens. The future meetings will be held semi-annually in January and July. The large number who have identified themselves with the organization, and who are enthusiastic workers, insures the success of the organization, and full reports of the future proceedings will be sent the JOURNAL.

A. GEORGE TEGG,
Secretary.

VETERINARY MEDICAL SOCIETY, ONTARIO VETERINARY COLLEGE.

At the meetings of the Society, in connection with the College, the following papers have been read during the past month. Many of the papers and discussions were unusually interesting and instructive.

Essays: "Sheep-rot," by J. A. Raleigh; "Post-partum Hemorrhage," by W. D. Brand; "Hog-cholera and Swine-plague," by B. Royer; "Ringbone," by J. Young; "Castration," by T. Sims; "Tuberculosis and its Relation to the Veterinarian," by C. W. Fisher; "Ergotism," by S. Caldbick; "Veterinary Profession," by J. W. Parks; "Tetanus," by J. S. Pollard; "Lymphangitis," by G. H. Davidson.

Communications: "Pneumonia," by W. A. Campbell; "Simple Ophthalmia in Sea-lion," by J. L. Devereau; "Laceration of Vagina," by W. D. Brand; "Symptomatic Anthrax," by G. T. Elliott; "Bruise of Calcaneo-cuboid Ligament," by J. E. Ellis; "Removal of Carotid and Jugular," by E. R. Stockwell; "Glanders," by T. Lambrechts; "Laminitis," by G. H. Davidson; "Enteritis," by T. J. Fletcher; "Impaction of Colon," by T. Sims; "Mammitis in Mare," by J. Young; "Ventral Hernia," by C. H. A. Stevenson; "Parturient Apoplexy," by B. W. Groff; "Lymphangitis," by D. H. McKay; "Eventration," by W. E. Fairbanks.

C. W. FISHER,
Secretary.

CHICAGO VETERINARY SOCIETY.

ON November 3, 1897, the Society held a joint meeting with the Chicago State Veterinary Association, under the management of the latter. The attendance was very large, there being a number of gentlemen present who were interested in the milk business. Dr. Henderson read a very interesting paper on "Milk Inspection," and Dr. A. H. Baker also read a very interesting paper on "Tetanus in the Horse."

The meeting on November 4th was also a joint meeting, it taking the

place of our regular meeting, conducted by our own officers. The chief feature of the meeting was an exposé by Dr. Joseph Hughes of the humorous methods in vogue at the Chicago horse-auction mart. He related the difficulties encountered by a veterinarian who is commissioned to buy horses in the "bull-ring." The veterinarian, it seems, is forced to buy in this ring, because it is the interest of the commission man that it should be so. Purchase in most cases, by private bargain is impossible, because these men as a rule have in most instances advanced money to the shippers to assist them in getting their stock into market. The former in this manner gain control of the disposition of horses so shipped. He criticised the legend which is hung up in the ring, called "serviceably sound." This is applied to horses which, on account of some blemish or defect, are not sound, but which still are supposed to do a reasonable amount of work without the said defect interfering with their usefulness in this direction. He said the term would be more correct if stated "Unsound, but serviceable." In speaking of the terms applied to these defects by the sellers in the ring he mentioned "speck in the eye," which may mean anything from a speck to a loss of vision; "a full hock" includes abnormally large formation, bog spavin, thoroughpin, and bone spavin." "Rounded hock" is the term applied to a curb. "A pea splint" may mean an exostosis of any size, and a "small sidebone" means a calcified cartilage of any size." "Strong in the pastern" means a ringbone of any size," and, finally, "crest fallen," but he did not define that, and the members are still guessing. The tests allowed to the purchasers after buying the horses are lamentably inadequate for the purpose of making a satisfactory examination of them, and all sorts of tricks are resorted to in order to mislead the examiners.

The discussion which followed was largely directed to the relative importance of sidebones, which, some of the members thought, if the sidebones had completed their formation and still left the horse going sound, they were justified in advising their clients to buy if the price was proportionate on that account. Others, including Dr. Hughes, thought that the existence of sidebones, to any extent whatever, constituted an unsoundness which justified a veterinarian in absolutely condemning the horse's purchase. As a result of the discussion the following motion was carried by the meeting:

"That the President appoint a committee of not less than five members to draft a guide which will aid us in distinguishing a sound from an unsound or serviceably sound horse when under professional examination, and present the same at our next regular meeting."

JAMES HENDERSON, M.R.C.V.S.,
Secretary.

VETERINARY MEDICAL SOCIETY OF THE UNIVERSITY OF PENNSYLVANIA.

MEETING called to order at 8 P.M., December 17, 1897, in the College amphitheatre. Mr. Spaeth was appointed critic, and Messrs. Johnson, Miller, and Nolan were appointed judges of the debate. Mr. Horner, '98, read a very interesting paper on "The Care of Milk on the Farm." Mr. Cheney, '99, gave an excellent talk on "What Horses are Considered the Origin of Trotting-blood in this Country."

Next in order was the debate: "Resolved, That Philadelphia is in need of a better system of meat-inspection." Affirmative: Mr. Kirby, '98; Mr. Keiter, '99; Mr. Phillips, 1900. Negative: Mr. McClure, '98; Mr. Hoopes, '99; Mr. Reardon, 1900. The judges decided in favor of the negative; nevertheless some good arguments were presented on both sides, and special mention must be made of the display of oratory presented by Mr. McClure, as his powers as a debater and orator are surpassed by few.

After the debate the Society adjourned and prepared for the banquet, which was held at the University Restaurant by the Veterinary Medical Society. The members of the Faculty present were Professors Pearson, Adams, Harger, and Hoskins, also the Resident Surgeon, Dr. Shaw. The attendance of the students was large, and the magnificent supper seemed to be enjoyed by all present. After supper several addresses were made by the professors and other members present, which made the occasion a very interesting one, and when the hour of departure came every one seemed well pleased with the proceedings of the evening, and without doubt a banquet will henceforth be an annual affair of this Society.

The last two or three meetings of the Society have been of special interest, for two reasons: first, by the zeal which the members show in their parts, and secondly, by the nature of the papers read and by the questions debated. Some of the papers read were as follows: "The Ox-bot, and How it Affects Cattle in the West and Southwest," by Mr. Blount, class '98. "Why Enter the Veterinary Profession," Mr. Repp, '98. "Jersey Cattle as a Dairy Breed," Mr. Hoopes, '99. "Consumption in Cattle Conveyable to Man," by Mr. Spindler, '98. "How a Lebanon Veterinarian Reduced a Hernia on the Abdomen of a Horse," Mr. Miller, '99.

Some of the questions debated were: *Resolved*, "That the requirements for entrance into the veterinary college should be raised." *Resolved*, "That the preservation of public health depends more upon the veterinarian than upon the practitioner of human medicine." *Resolved*, "That the State should recompense the owners of glanderous horses to 50 per cent. of their healthy value."

Beside the foregoing there were also several very good addresses made by members of the Faculty. At one of the recent meetings the Librarian informed the Society that Prof. Adams had presented the Society with the *Veterinary Magazine* for three years.

A very good measure brought about by the Society was the prohibiting of strangers in the operating-room during operations.

At the next election of officers one of the most important changes will be the election a new Honorary President in the place of Prof. R. S. Huidekoper, and the new officer will probably be one of the members of the Faculty. At a recent meeting the name of Dr. Megary was proposed, and he has duly elected as honorary member of the Society.

The first meeting after the holiday vacation will take place in the lower lecture-room, Friday evening, January 7, 1898, at 7.30 o'clock. The programme promises to be an interesting one, and all are cordially invited to be present.

M. JACOB,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE December meeting was held Tuesday evening, the 13th inst., in room No. 1, northwest corner Broad and Filbert Streets. The following members of the profession were present: Drs. Charles Williams, J. D. Houldsworth, J. O. George, William P. Phipps, Benjamin Underhill, J. J. Maher, W. M. Drake, A. M. Lushington, W. Horace Hoskins, Leonard Pearson, W. L. Rhoads, Thomas B. Rayner, C. J. Marshall; also Messrs. Megary, Jones, and Blount, of Veterinary Department of the University of Pennsylvania.

During the committee reports, Dr. Hoskins as Chairman of the committee to take up the work of the Association in the interest of a better meat-inspection for Philadelphia, in conjunction with the Woman's Health Protective Association, spoke of the meeting recently held by that society in which they had appointed a committee of five to specially take up the work of meat-inspection for Philadelphia.

The application of A. N. Lushington, V.M.D., was now reported and considered by the Censors. The President appointed Dr. C. J. Marshall to fill vacancy upon said board. The application being favorably recommended, Dr. Lushington was unanimously elected to active membership, and introduced.

Dr. S. J. J. Harger, the essayist of the evening, telegraphed that he could not be present, so the President now called for the reports of cases, which could not be made at the last meeting for want of time. In response, Dr. Hoskins reported the case of a dog having been under observation for four years; came to hospital in October with a discharge from nostrils, loss of appetite, distressed breathing, enlargement of glands—especially thyroid, thymus, and inguinal—which were as large as eggs, dropsical effusion along thorax. Temperature $104\frac{1}{2}^{\circ}$. The autopsy showed enlarged glands, liver pale, pulp of spleen increased and liquefied, intestines anæmic. He had Dr. Formad examine some sections from glands, and from him received the following report of conditions found: Hypertrophy of lymphatic glands. Lymphoma often found with blood-diseases; a condition very rare, but few cases being on record.

Dr. Pearson then spoke of a cat having pernicious anæmia that proved to be leukæmia, and asked Dr. C. J. Marshall to tell what he knew of the case, he having treated it. The cat was first treated for skin-trouble, which at times seemed to respond to treatment, then became worse. The glands became swollen, were at times very large, when, on the next day, they might be normal. Examination of blood showed white blood-corpuscles much enlarged. The autopsy proved this case to be one of leukæmia, a pathological condition seldom found, and one of which but few similar are upon record.

Dr. Pearson now spoke of two outbreaks of anthrax in the State, and said both were due to the working of foreign dried hides, and said the State intended to vaccinate the cattle in certain sections next season should the loss from anthrax exceed 4 or 5 per cent., as this was the percentage of loss in vaccination.

After the report of several interesting cases, Dr. Hoskins asked that the views of all present might be freely given as to the best place for the meeting of the United States Veterinary Medical Association for 1898.

It was the opinion of those present, both visitors and members, that the greatest good could be realized by meeting in Boston.

Dr. Hoskins now spoke of the money needed for the work now being done in the interest of better meat- and milk-inspection for Philadelphia.

It was moved and carried that the committee already appointed be authorized to solicit subscriptions for this purpose.

Notice was then given of the midwinter examination to be held by the State Veterinary Examination Board. The meeting then adjourned until January 11, 1898.

DR. W. L. RHOADS,
Secretary.

PERSONALS.

Dr. R. B. Plageman officiated as veterinarian to the Metropolitan Kennel Club Show in Brooklyn in November.

Dr. H. S. Perley, of St. Albans, Vt., has removed to Ottawa, Canada, and formed a copartnership with Government Inspector, Veterinarian A. E. James.

Dr. T. G. Risum, of Montevideo, Minn., has been away from home on a three months' trip.

Dr. A. F. Schrieber, of Philadelphia, is directing veterinarian of a specially kept dairy where a prepared koumyss is made for the market.

Dr. W. L. Zuill, of Philadelphia, in conjunction with his practice in human medicine, will manage a drugstore in the northern central part of the city.

Dr. John A. Pearson, of Philadelphia, is pursuing a post-graduate course at the Veterinary Department of the University of Pennsylvania.

Dr. Leonard Pearson, of Philadelphia, was prominent among those attending the Convention of Grangers at Harrisburg, Pennsylvania, in November.

Dr. S. E. Weber, of Lancaster, Pa., was a visitor to Philadelphia in November, in consultation with several of our city's specialists in surgery.

Dr. Leonard Pearson was on the ill-list for several days in November.

Dr. William Dougherty, of Baltimore, Md., was confined to his bed for some days in the latter part of November.

The veterinary inspectors at the recent Pittsburg horse-show were Drs. J. C. McNeil, G. H. Dunn, and J. Stewart Lacock.

Dr. A. W. Clement, of Baltimore, was among those who attended the Fasig sale of trotters in New York, and purchased the trotting-horse "Walter S.," 2.12 $\frac{1}{2}$ mark.

Knock's cork-stone for stable-floors is the latest production. Said to be waterproof, fireproof, and noiseless, and a very slow wearer. It is composed of ground cork, ground tan-bark, ground peanut-shells, waste-paper and alum-water. This combination is baked in kilns.

Drs. J. W. Sallade, of Pottsville, and J. C. McNeil, of Pittsburgh, were visitors to Philadelphia in December, attending the mid-winter examinations of the Pennsylvania State Board of Veterinary Medical Examiners.

Veterinarian James T. McAnulty, of Philadelphia, Vice-President of the National Horseshoers' Protective Association, is a frequent contributor to the columns of the *Horseshoers' Journal*.

Dr. A. Liautard holds the position of consulting veterinarian, and Dr. S. K. Johnson that of veterinarian to the Department of Health of New York City.

Dr. J. F. Jones, of Marietta, Ohio, was a visitor to the East during December, stopping at the JOURNAL office on his way homeward.

Dr. James Walsh, of New York City, has been added to the Scientific Committee of the National Master-shoers' Protective Association.

Dr. D. E. Salmon has an article in *The Feather* for November on "Mycosis of the Air-passages; Aspergillosis of Fowls."

Dr. W. G. Houck has recorded some interesting observations on rabies in his report printed in the yearly proceedings of the Board of Agriculture of Pennsylvania.

Dr. James Robertson, of Chicago, after four years of earnest, active work in the interest of the shoeing craft, has retired from the Scientific Committee.

Dr. D. E. Salmon is one of the Board of Directors of the National Poultry and Pigeon Association.

Dr. C. Stewart has been transferred in charge of work from Toledo, Iowa, under the Bureau of Animal Industry, to Kansas City, Mo.

Dr. A. T. Peters, of Lincoln, Neb., addressed the Nebraska Jersey Cattle-breeders' Association at Crete, Neb., in December.

Prof. A. Liautard, after a sojourn of two months in America, returned to join his family in sunny France. While here a neatly-bound copy of the college announcement for 1897-98 was sent to a number of the Alumni of the American Veterinary College.

Dr. Leonard Pearson was a visitor to the Capital, spending a portion of the holidays in the Congressional city.

Dr. E. P. Schaffter has been promoted and transferred to Toledo, Iowa, as chief inspector for that district.

Dr. J. C. Dustan, of Morristown, N. J., passed the 60th milestone of life in December, in the full vigor of health and with the zeal of a much younger man in the work of the profession coursing through his veins.

Veterinarian Owen Reist, of Kossuth, Ontario, holds the position of Sanitary Inspector for Waterloo township. This work includes a systematic inspection of all dairies and herds supplying milk to the towns of this district.

Veterinarian Hugh F. Doris, of Pittsburg, Pa., found himself in the hands of the law during December. The charge against him was exposing for sale watered milk, he having recently embarked in the dairy business.

The outcome of the recent investigation of the Bureau of Animal Industry officials at Buffalo seems to have culminated in the placing of the office of these officials at the East Buffalo stock-yards.

At a box-party at one of Philadelphia's theatres, in December, the presence was noted of City Veterinarian McNeil, of Pittsburg, Chief Meat-inspector Schrieber of Philadelphia, State Veterinarian Pearson of Harrisburg, Prof. S. J. J. Harger, of the University of Pennsylvania, Veterinary Department, and Editor Hoskins, of the JOURNAL.

Dr. John R. Mohler, of the Bureau of Animal Industry, Meat-inspection Department, stationed at Milwaukee, Wis., is on a ten days' leave of absence, visiting his home at Philadelphia.

Veterinarian Muir, of Philadelphia, fills the post of Master of his Masonic lodge during the ensuing year. In December Dr. Hoskins was selected as Junior Warden of Ivanhoe Lodge of the jurisdiction of Pennsylvania.

Dr. Harry Walter, of Wilkesbarre, was confined to his bed, from a severe attack of lumbago, in December.

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A FEW WORDS ANENT WOLF-TEETH.

BY DR. L. A. MERILLAT,

PROFESSOR OF DENTAL SURGERY, M'KILLIP VETERINARY COLLEGE, CHICAGO.

Synonyms: Rudimentary premolars, anterior premolars, undeveloped premolars, retrogressive premolars, supernumerary teeth, supplementary teeth, remnant-teeth, eye-teeth.

Definition. Wolf-teeth, so called because they bear some resemblance to the canines of the dog or wolf species, are retrogressive dental structures undergoing degeneration in the modern domestic horse, and representing the anterior premolars of extinct species.

Anatomy. They are located in the interdental space of the upper jaw, rarely the lower, usually related to the anterior border of the first molar, but may occur in any part of the interdental space behind the canine. The common location of those not contiguous to the molar is from one-half to four centimetres from it.

Size. The variations in their size, shape, and structure, due, no doubt, to the varied integrity of their surroundings, their poor individuality, and their tendency to degenerate, exceed those of all other normal structures. A majority of the observable ones vary from four to thirty millimetres in length and from two to eight millimetres in diameter. Others, favored with influences conducive to dental development, attain the size of a canine, and in rare cases assume the characteristics of herbivorous molars, while still others never reach the period of eruption, but remain invisible to casual inspection.

Shape. In shape they vary somewhat less than in size, resembling a human canine-tooth in many respects. They present a well-marked neck, fang, and crown, and in this respect seem to represent teeth of temporary dentition. Their crowns, divided from the fang by a well-restricted neck, are varied in shape, but always irregular, and if closely related to the molar may present a flat posterior sur-

face. The fang constitutes the major portion of the tooth. It tapers to a blunt, rounded extremity, is irregular, often curved, and is always covered with rough incrustations of cement. It has no foramen at its apex, as the pulp-cavity is obliterated at an early stage of development, if it exists at all.

Structure. The better-developed ones are composed of the fundamental dental substances, normally arranged. The enamel-organ forms a cap for the crown identical with the enamel-cap of the human molar; but, unlike the latter, it soon wears so as to expose the dentine—an herbivorous characteristic. It does not, however, extend beyond the neck, as in the typical herbivorous molar.

The dentine constitutes the bulk of the tooth, seldom interrupted by an infundibulum or a pulp-cavity.

The cement forms a thin layer over the neck and fang. It serves to increase the solidity of its implantation, and is the only medium through which the tooth obtains nutriment.

In fine, their structure resembles the simplest form of mammalian teeth—*i. e.*, a body of dentine capped with enamel and incrustated over the remaining portion with cement.

The very rudimentary ones show no regular arrangement of the fundamental substances, but consist of a homogeneous mass of dentine, dense on the exterior, and becoming less so toward a central white cylinder, which seems to represent the original pulp-cavity.

Evolution. They are frequent if not constant in embryo, and are arrested in growth at different periods of their evolution by the exertion of some recondite influence—probably according to Darwin's doctrine of natural selection. It is apparently conservative to state that a large share are arrested in growth during their foetal life; others reach various stages of development after birth, while only a minority attain the period of eruption. The latter—the observable ones—alone demand attention, and may be classified according to the time of eruption into two classes:

1. Wolf-teeth of temporary dentition.
2. Wolf-teeth of permanent dentition.

This classification should not be mistaken to signify that temporary and permanent wolf-teeth exist, as they are never supplanted when once removed.

The first class are those very rudimentary teeth which appear between the tenth and twenty-fourth month. They seldom withstand the shedding of the first molar, or are so disturbed by this event as to render their removal quite certain at an early period.

The second class erupt between the second and fifth year, but may not pierce the gums for several years later, and in some instances remain covered with the gum through life.

According to location and size they may also be divided into two classes :

1. Those contiguous to the molar, usually large and well developed.
2. Those remote from the molar, usually small in size or rudimentary in structure.

The former are the best developed of all wolf-teeth. Whether they belong to the wolf-teeth of temporary dentition, and remain unmolested by eruption of the first molar, or erupt after this event has taken place, they always possess the distinctive features of mammalian teeth. They have firm alveolar walls, are surrounded by an alveolo-dental periosteum, and in many ways ably represent their predecessors. Their development seems to be greatly augmented by the influence of the first molar.

The latter (second class) are the most rudimentary of wolf-teeth, whether they appear during temporary or permanent dentition. They often remain covered by the gums, lose all dentinal qualities, and become incorporated with the maxilla. Even those whose fangs grow sufficiently to force the crown through the gums are deficient in structure and soon succumb to external influences.

Further research into their anatomical peculiarities, morphological characteristics, and their evolution tends to confirm the belief that they are retrogressive dentinal structures which will under suitable conditions become extinct.

Along these lines the effects of domestication, breeding, mode of life, and habits upon their size, frequency, and development should be noted. The wild horse, the broncho of the American plains, and the poorly-bred domestic horse have large, well-developed ones, possessing all the characteristics of typical mammalian teeth, while the finer breeds—the American trotter, the English hunter, the thoroughbred, and the larger breeds of draught-horse—have relatively small and rudimentary ones, often lacking a normal arrangement of the fundamental dental substances. In the former they are often actively concerned in mastication, while in the latter they usually succumb to external influences at an early age.

Confronted with this evidence, obtained by extensive observation, it would first appear that the doctrine of "natural selection" is not applicable to their retrogression, as all the influences which would naturally be expected to favor development, instead of degenera-

tion, are exerted in the finer breeds; but when the variation in the quantity, quality, and texture of the food masticated by each is considered the soundness of the deduction becomes apparent.

Research as to their frequency in the different breeds is rather disappointing as compared with the other variations, yet they are somewhat more prevalent on the coarser breeds.

It is a matter of common observation that they are undergoing a "process of disappearance" in our modern well-bred horse, and are only retained upon the scene by the stubborn influence of heredity, and if the law of "natural selection" is applicable to their retrogression—and it no doubt is—its influence upon them is no less remarkable than the persistence with which they retain their identity after generations of disuse and uselessness to their possessors.

It cannot be disputed that there is a perceptible tendency toward enlargement of the diastema as breeds improve, and that the inferior maxilla—the seat of the bit—is no longer a common location for these teeth. It is, therefore, only reasonable to suppose that the "adaptive" influence of "natural selection" is instrumental in "clearing up" the interdental space of offensive agents.

Their effect upon the eyes. Among the laity the impression that wolf-teeth exert an evil influence upon the eyes is well established, while veterinarians hold somewhat varied opinions. The majority, however, are disinclined to entertain such views, or else dismiss the matter as unimportant. It must be admitted that if any relation exists between these organs and the visionary apparatus it is only remarkable for its remoteness. Yet the subject has been sufficiently agitated to warrant brief notice.

Along this line a number of theories have been advanced:

1. That the fang of the wolf-tooth infringes upon the supradental branch of the trigemini, and reflexly affects the organ of vision.

2. That "weeping-eyes" may be due to occlusion of the lachrymal conduit caused by eruption of wolf-teeth.

3. That irritations or catarrhal conditions incidental to their eruption affect the eyes by continuity of tissue.

It is readily seen that these deductions are of no value, however plausible they may seem from casual investigation. It would indeed require an elastic imagination to depict an extensive conjunctivitis caused by irritation of the dental nerve. The other two, in fact all these theories, are exploded by the fact that wolf-teeth erupt without any amount of irritation. They have never

been observed to occasion any visible disturbance to the surrounding tissues. And, again, to argue that the circumscribed counter-irritation produced by their extraction could benefit an ocular disease is too speculative, if not entirely beyond reason.

The abortion of ocular phlegmasia following their extraction must be regarded as a mere coincident, or at least be viewed from an empirical standpoint until some substantial argument is advanced which will implicate them in the causation of such diseases.

Treatment. Being the rudiments of normal structures, never diseased, and, as far as observation goes, do not augment or cause disease of any character, it may seem inconsistent to prescribe surgical treatment for them. Yet for the following reasons their universal extraction should be recommended, viz.:

1. To free the interdental space of offensive agents. Their location and unstable implantation render them susceptible to mechanical injury, and their crowns may cause abrasions of the buccal membrane. They thus interfere with mastication, and often are productive of disagreeable driving-habits, such as unilateral pulling, frothing, nervousness, etc. The necessity of obviating and palliating such habits cannot be over-estimated among highly bred, nervous animals, as their affability so largely depends upon a complacent acceptance of the bit.

2. To accede to the demands of an anxious client. And besides, during the treatment of ocular disease, the strategical veterinarian will never fail to recommend their extraction.

Modus Operandi. The operation of extracting wolf-teeth, seemingly too simple to warrant attention, is one of those many small matters by which a practitioner's gross ability is often measured, and from this standpoint alone should obtain more than passing notice from the circumspect veterinarian.

Like in the extraction of any tooth, the process requires the application of pressure, torsion, and outward force simultaneously and dexterously combined, and beside the operator must be mindful of the possible interference of the movable inferior maxilla. The amount of pressure and torsion must be measured by the stability of the tooth's substance, while the outward force must necessarily equal the firmness of its implantation.

In the case of the better developed ones, the operator assumes a position on the opposite side of the head. The hand containing the forceps is passed beneath the inferior maxilla to the side containing the tooth. In this position the tooth is grasped as near the neck as possible with the forceps forming a right angle with the long

axis of the upper jaw. The instrument is held rigid to limit the outward motion of the lower jaw, then, with the proper application of pressure, torsion, and outward force, extraction is usually successful.

The rudimentary ones and those remote from the molars are best extracted by first disturbing the alveolar walls with a sharp separating-forceps before applying the regulation wolf-tooth instrument. Even in the case of well-developed ones the separating-forceps is valuable to render extraction certain. The tooth is loosened by forcing their edges between the molar and the wolf-tooth, then the regular forceps is applied, with success.

Fracture during extraction, while very common, is not usually serious from the practitioner's point of view, as the embedded part will soon become covered with the gum.

Summary. The following are a few deductions made from a study of these interesting structures, viz.:

1. That wolf-teeth represent the four anterior premolars (two superior and two inferior) of extinct genera, followed by an almost unbroken chain, from genera of the tertiary period through successive ages to the present horse.

2. That their retrogression is identical with that of the wisdom-teeth of man, which are undergoing the same process of degeneration in the more highly civilized races.

3. That they are retrogressing in the modern horse in accordance with the doctrine of natural selection.

4. That their retrogression is discernibly within the scope of modern observation.

5. That the theories that they are the result of accidental dentition (supernumerary), or of hyperdentinal development (supplementary), is not worthy of serious thought.

6. That they should be included in the category of normal structures, the same as the wisdom-tooth is included in the formula of human dentition.

7. That they are not etiological factors in diseases of the eyes, but may interfere with mastication and cause disagreeable driving-habits.

8. That they are less frequent and more rudimentary in the finer breeds.

9. That their development in size and structure depends upon their contiguity to the molar.

10. That their universal extraction should be practised by the veterinarian.

THERMO-CAUTERY, AND ITS USE IN VETERINARY PRACTICE.

By P. O. Koto, M.D.C.,
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PROVIDENCE, perhaps, never bestowed on mankind a greater gift than the horse, the noblest beast of burden, and man's best friend ; but, with its wonderful anatomical construction and graceful movements, it is oftentimes, like modern machinery, liable to accidents and breakdowns, requiring the aid of an expert. No class, breed, size, or sex is exempt from the various ailments liable to follow from overwork, lack of exercise, idleness, excessive play, as well as abuse by its inhuman master. Interruption with the free movement of any part of the body and limbs causes lameness and untold suffering to the animal, and lack of usefulness and depreciation in value to its owner. Lameness, when severe, is usually easy to locate ; but when slight, with no history of the case, requires a critical examination. Mistaken diagnosis often happens with the inexperienced.

The methods of treatment are numerous: Hot and cold applications, compresses, poultices, absorbent and stimulating liniments, blisters, cauterization, and a great many other methods.

There are three kinds of cauterization : superficial, objective, and potential. These may be subdivided.

The actions of ordinary blisters are usually too superficial to exert much influence on deep-seated ailments. The *actual cautery*, on account of the more intense and penetrating inflammation produced, is more effective. The difference between potential and actual cautery is—potential cauterization consists in the application to the surface of some chemical agent (caustic or acid), destroying the skin and tissues. Objective cauterization is now seldom practised ; it consists in cauterizing the diseased parts by means of a hot iron held at a certain distance from it. Actual cauterization is not a new invention, but its value has been recognized from remote ages up to the present time ; not a barbarous, inhuman method, as claimed by those that are prejudiced. In certain cases it is less painful and far excels other methods of treatment.

In the hands of those unskilled in its legitimate use, the damage done may be equal and even greater than the benefits derived. The operation does not merely consist in burning and searing with a hot iron, producing an extensive sore ; it consists in the skilful and mechanical method of introducing heat into the living body with

a special object in view. In some cases the object is to form a permanent inelastic and unyielding bandage to the limbs or parts by causing a shrinkage of the skin and tissues. In deep-seated complaints a more active inflammation is produced, causing a greater flow of blood to the parts, assisting nutrition to the existing morbid structure; the more highly organized parts having the most sensibility, hence causing the most pain.

The ordinary instruments employed for actual cauterization are made from iron, steel, and copper. The most modern improvement is the thermo-cautery of various makes, the original being invented by Dr. Paquelin. After the discovery, by the engineer Montaigne, of the incandescent light produced by the combustion of hydrocarbon gas heated in a platinum shell, and used in the mines, Dr. Paquelin introduced it to the medical profession for cauterizing purposes. Many improvements have since been made. There are various makes on the market, nearly all consisting of a reservoir-handle, or plated cylinder, about four or five inches long, packed with absorbent non-combustible fibre, held in position by a metal netting.

Hydrocarbon gas being generated by means of gentle pressure to a double rubber-bulb attached to the reservoir, containing benzine or other hydrocarbons, the continuous stream of air thrown upon the surface of the benzine becomes mechanically charged with benzoline vapor; the mixed gases pass out of the chamber or handle into another tube or shell, containing two perforations for exit of the gases resulting from combustion, a platinum point or hood, of various shapes and sizes, being attached to this. By heating the point with a spirit-lamp or patent blowpipe, attached to the reservoir by means of a rubber tube and stopcock, gentle pressure of the rubber-bulb forces the mixed air or vapor to the heated platinum points, causing a chemical union of the two gases, and complete incandescence is obtained. When properly charged it should keep the points burning from one and one-half to two hours.

The thermo-cautery is in every respect, for most purposes, preferable to the ordinary cautery-irons, being more convenient to handle, extremely light and portable, and can be employed away from home, requiring no forge, there being, consequently, less danger from fire when employed in an ordinary barn. It is very clean and attractive, and will not corrode, scale, or oxidize; hence, no danger from the introduction of foreign bodies. The continuous, even heat in a small space does not roast the skin adjoining the lines, will leave a smaller blemish, and is less painful. By

continuous practice it is more easily applied, and, unless the animal is very vicious, or of a nervous disposition, the operation can be performed with the animal in a standing position, a hood being applied to the head, a twitch to the lip, and one limb being held up by a leg-strap, side line, or assistant. If the animal is of a very irritable and determined disposition he should be placed on an operating-table, or be firmly secured by the aid of throwing-harness. Where the operation is very painful, the animal may be placed under the influence of an anæsthetic agent. If both sides of the limb are to be operated on, operate on the inner side first, for if the external side should be cauterized first and turned over on to the parts it would be more liable to injury.

In preparing for the operation the hair should be thoroughly removed by a clipper, or shaved; cauterizing without removing the hair is liable to burn the surface. After removing the hair, brush the parts, or wash thoroughly, and apply some antiseptic, and rub dry before applying the cautery. Never fire a recent injury; for instance, a sprained tendon. First reduce the fever by cold or warm applications; warm applications combined with bandaging will assist reabsorption. For a diseased tendon, apply two long rolls of tow, oakum or cotton, rather thicker than a man's thumb, moistened in warm water and placed lengthwise, the tendon held in place by linen or cotton bandages wetted and applied rather tightly; over this place a dry woollen bandage, and change every four hours, continued for a few days.

There are many forms of cauterizing, but the most ordinary are the penetrant and linear. These lines or points may be arranged in a number of ways, according to situation or fancy of the operator: Parallel lines, diagonal, vertical, rectangular, triangular, and oblique—the more simple the design the better. Lines made in the shape of a lyre are often used, but the most ordinary is the feather-shape. If convenient, run the lines in an oblique direction of the limb, so that the skin, yielding to the movements of the region it covers, will have a tendency to bring the edges together and leave the blemish more completely covered by hair. The distance between the lines will depend upon the depth to be cauterized, also the situation and fineness of the skin. Begin by first marking the outlines with the cautery just hot enough to burn the hair. In certain locations the outlines can be made with crayon, and afterward traced lightly by the cautery. Then heat the points to a bright red or cherry color (avoid a white heat). Do not cauterize too deeply at first, but go over it several times, until the

desired color is obtained. These may be divided into three groups: The first is of a golden-yellow, the lines narrow and shallow, with very slight serosity; the second is a bright yellow, with a slight reddish exudation, the lines deeper than the first; the third being a light yellow, with an abundant serous flow.

The veterinarian familiar with the methods of a few incompetent trainers at the race-tracks has often witnessed a speedy animal brought to the track slightly lame and forced to go three to five miles up to speed striking a 700-pound blow or more. Fortunes have been lost and bright prospects ruined by overworking the young animal. Almost every breeder and owner can point to such a case in his own career. Yet accidents will follow, under the most favorable circumstances, by the most able and careful trainers, resulting in strained or ruptured tendons and ligaments, the location of the complaint often depending upon the build and conformation of the animal. Perhaps those most often met with in young animals are the distention of the lower tendinous sheaths of the extensor and flexor tendons. In older animals sprains and ruptures of the suspensory ligament are often met with, either single or double, or in company with inferior check-ligament, in some cases the fetlock-joint almost descending to the ground, which requires special treatment. Lower the toe by paring the hoof, or raise the heel by shoeing, or brace the limbs by means of a truss attached to the shoe and fastened to the limb by straps. Frequently we find sprains and ruptures of the flexor pedis perforatus, perforans tendons, and tendinous sheaths, and check-ligament, and sometimes involving the sesamoidean sheath.

Both the penetrant- and feather-points are employed in the treatment of these tendons and suspensory ligaments. Feather-fire from behind downward and forward, and make the lines from three-quarters to one inch apart, the depth depending upon the severity of the case. When deep-seated, pin-fire at intervals over and into the tendons and ligaments. For the descending fetlock-joint, pin-fire along the suspensory, downward and forward, to the attachment of the extensor pedis. In some chronic cases the thickening refuses to yield, and the tissues remain firmly organized; then cauterize deeply, and combine with a blister. The chief effect produced in cauterizing is the cicatricial shrinkage of the cutis and tissues—acting as a brace or bandage.

In the treatment of any periostosis or exostosis, such as splints, ringbones, and spavins, both points are employed; but the penetrant or puncture in such cases is more effectual than feather-fire.

The main object is to set up a deep artificial inflammation. The benefit derived is in the direct proportion to the periosteal irritation which it excites. For bone-spavin feather-fire as high up as joint of astragalus, and also on external aspect of joint. A complete ankylosis of the large metatarsal bone and those adjoining above may be produced and still have lameness from the external side. Puncture deeply in the lines over the spavin. The point should be quickly removed if the joint has been entered. Batazzi recently recommended the treatment of spavin by subcutaneous firing, formerly introduced by Nanzio. After making an incision one and one-half to two inches in length over the exostosis, the edges of the wound are drawn back and a few punctures made in the shape of a triangle with the base directed upward. No doubt great assistance in the treatment of spavins and ringbones could be attained by the x-ray if it could be practically applied. After cauterizing, blister the parts and place in single stall, and tie head up high to avoid biting the parts. Do not let the animal lie down for four weeks. At the end of six weeks turn loose in a box-stall. In eight or ten weeks give gradual exercise, but the longer the rest the better. Repeat the treatment if necessary. Failure to cure will often follow and baffle the skill of the practical veterinarian by this and all other methods of treatment.

Atrophy of the crural and gluteal muscles is often the sequel of azoturia. Its connection with the disease is explained by the fact that the crural nerve passes through the ilio-psoas muscles, which in this disease seem particularly involved. Puncture deeply over the diseased surface. The benefit obtained is through the deep-seated inflammation produced checking degenerative changes and improving nutrition to the paralyzed muscle. During the season of 1894 a fine young gelding, weighing about 1400 pounds, became my property upon the payment of one dollar. The animal about three months previously suffered from azoturia, and could only walk with great difficulty, the muscle from the ilium to the patella being completely atrophied. The penetrant cautery was employed, and at the end of three months the muscle was completely restored, resulting in a permanent cure, and the horse brought fifty dollars. I can point to a number of similar cases.

There are many other ailments in which treatment with the thermo-cautery is of great value: Atrophy of the anterior and posterior spinatus muscles, curbs, partial luxation of the patella, hydrarthrosis, synovitis, sesamoiditis, arthritis, paraplegia, for the removal of warts and tumors, to evacuate and dilate cavities,

fistula, poll-evils, polypus, piles; in the treatment of gangrenous wounds and ulcers, actinomycosis, etc. Its application in surgery is of great benefit, and it should be in the hands of every practising veterinary surgeon.

LYMPHOMA.¹

BY J. L. MILLER, V.S.,
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A PROFESSIONAL man's duties are so varied and extensive that he has to do much reading and studying in order to keep abreast of his profession, as well as to maintain an ordinary degree of intelligence upon the social, political, and religious problems, that it is scarcely probable he will remember all the important facts in the several branches with which he has to do. Even those of us who are employed in the lecture-room, and go over the same ground year after year, find it necessary to review, and how much more those of us who are engaged in active practice and other divisions of the profession? Hence, it is my purpose to rehearse some facts in regard to this uncommon class of tumors, with a view to helping those who have not had the opportunity of seeing them, that they may become familiar with their structure and appearance, and be able to distinguish them from other growths of similar character.

During the last year, while engaged in meat-inspection, I have had the opportunity of seeing some rare pathologic lesions, among which is this one of lymphoma. There are a great many pathologic conditions of which we frequently read, but seldom have the opportunity of seeing, and how very unfamiliar we are with them!

Lymphoma, lymphadenoma, lympho-sarcoma, are the three names given to this class of tumors; the first indicating a mild and non-malignant form of the disease, and so really considered an hypertrophy of glandular tissue, while the second and third are synonymous terms and are defined by Williams "as a malignant and fatal growth, occurring in all the patients of a veterinary surgeon, as well as in man, arising from no appreciable cause, being sometimes of a very slow, and sometimes of a very rapid growth, differing from other malignant tumors in this one particular, namely, that it seldom invades but one kind of tissue—that of the

¹ Read before the Iowa State Veterinary Medical Association.

glandular system, but as certainly proving fatal as a tumor presenting all the characteristics of the most potent malignancy."

I have always observed these tumors to originate in the lymphatic glands, to which, in some instances, they bear a marked resemblance in anatomical structure, having a medullary and cortical portion enclosed in a capsule which sends trabeculae into the interior, forming a matrix in which are lodged the new cellular elements. The cortical portion in some instances is well marked, constituting one-half of the entire growth, while more frequently it is less clearly indicated and seems to lose its reddish color and become of uniform color throughout.

Similar changes take place in the medullary substance, which is occasionally a milky-white in the early part of the development, and finally this white tissue is replaced by the gray as the growth progresses; but this is not uniformly so, because we find more frequently that the gray predominates from the commencement.

The construction of these tumors is very much more delicate than many other varieties, and consequently they offer less resistance. In some cases, when cut through, there issues from the cut surfaces a thin, milky fluid. This class of tumors has been observed in the facial, submaxillary, parotid, and cervical regions, also in the axilla and groin.

I have only once seen an exterior development, and in this instance four or five of these tumors, about as many inches apart, appeared on the side of a mule's neck, along the course of the carotid. These were spherical in shape, and varied in diameter from one to four inches.

Lymphomata develop most frequently internally, and have been seen generalized by Dr. Stewart, of Kansas City, as recorded in the last issue of the *Veterinary Review*, and also by Dr. Daniel D. Lee, as stated in the *JOURNAL OF COMPARATIVE MEDICINE* for January, 1890. The first observed it in a cow, and the latter in a St. Bernard dog. In both of these instances there was gradual and increasing emaciation.

A single instance of the diffused form has been noticed by the writer in a hog, which was accompanied by general emaciation. Lymphoma, however, is more frequently seen involving a single gland, such as the spleen, liver, kidney, mesenteric, or lymphatic gland. In my observations I have found them most frequently in the lymphatic glands of the sublumbar region, where I have seen them originate in a single gland or involve all in that locality.

They vary in shape and size, being sometimes spherical, while

others are oblong, or oval. Some of them weigh a few ounces and others several pounds. They never undergo such degenerate changes as softening, ulceration, calcification, or caseation, as tumors of a malignant character usually do. They destroy the function of the gland or glands in which they are located, and cause death in this way, or by exerting pressure on vital parts, or by producing leucocythæmia.

The probability of successfully exterminating them is very limited, even when their location is such as to make them accessible. As the most of these lymphoid growths which have come under the observations of reputable scientists have proven to be malignant, and as it is impossible for many versed in microscopy to discriminate between the benign and malignant, it is incumbent upon those of us who are engaged as sanitarians and meat-inspectors to become as thoroughly acquainted as possible with the different tumors and their distinguishing characteristics. I have obtained and preserved a few specimens, which I send in company with this paper.

As the object of these annual gatherings is to read and discuss subjects of professional interest, and to interchange individual experiences, I send you fraternal greeting, and hope this paper may have some helpful suggestions.

FEEDING CORN-SMUT TO DAIRY-COWS.¹

BY CLINTON D. SMITH,

DIRECTOR OF THE MICHIGAN AGRICULTURAL EXPERIMENT STATION.

PROFESSOR C. F. WHEELER, the botanist of the station, reports as follows concerning the life-history of corn-smut and the precautions to be observed to avoid its further extension:

“Life-history. In an address delivered before the Agricultural Club, at Berlin, Germany, February 11, 1888, Dr. Oscar Brefeld, first gave to the world the true life-history of corn-smut. For twelve years he had experimented with the greatest care, both in the field and in the laboratory, to learn the actual behavior of the smuts of cereals.

“It had been proven before this time that the smuts of wheat, barley, and oats enter the sprouting grain when the young stem is less than one-quarter of an inch in length, and grow upward with

¹ Michigan State Agricultural College Experiment Station, Bulletin No. 137.

the growth of the stem until the grains in the head are formed, when they at once seize upon this storehouse of prepared food, appropriating it to their own use. Until 1887 it was supposed that corn-smut followed the same course of development.

“The crowning glory of Brefeld’s discovery is in proving that corn-smut may infect the plants at any time before their full maturity, and, moreover, that the ripened spores themselves, by falling upon the corn-plants, do not directly produce the disease.

“These black, dusty masses of ripened smut-boils contain multitudes of dark-brown spores well protected with thick walls, making them capable of resisting extremes of temperature and moisture and retaining their germinating power for a number of years.

“These spores were found by Brefeld to germinate readily outside and away from corn-plants whenever placed in moist, fresh manure. He also found that they would not germinate readily in pure water, but that in manure-water the spores germinate rapidly, forming a multitude of short branches which produce secondary spores in great numbers. These secondary spores are formed in the air, on the surface of the water, also beneath it and are easily carried by winds to fields, falling upon all parts of corn-plants. Dew and rain carry these small spores inside the leaf-sheaths and the husks of the ears, where they at once send out germ-tubes that enter the plants, producing a local disease (the well-known smut-boils) near the place of infection. In two or three weeks after the infection the characteristic smut-boils appear.

“This disease has been known since the discovery of America, and has followed the introduction of corn-raising into all parts of the world.

“The loss to the corn-crop is rarely a serious one, in ordinary years not averaging over 2 per cent.

“*Prevention.* No remedy for corn-smut is known. From the above account of its life-history, it is evident that it is useless to treat the seed previous to planting. No doubt fungicides sprayed upon the growing corn might check the disease, but this treatment is not practicable.

“Certain precautions may lessen the disease, for instance, cutting out and destroying smutted parts before the spores ripen, and the use of chemical fertilizers and well-rotted manure, with a reasonable rotation of crops. The use of manure from stock fed with silage of smutted corn certainly tends to increase the liability to infection in fields to which such manure is applied. Our knowl-

edge of the manner in which the disease is carried from field to field is wanting."

The unusual prevalence of smut in the College cornfields in the fall of 1895 furnished the material for an experiment to test the effect of feeding corn-smut both in moderate and excessive quantities to dairy-cows.

The smut was gathered after the corn was cut, and no attempt was made to entirely separate the husks and small abortive ears from the actual smut-boils. Many masses of smut fell to the ground and brought away with them small quantities of sand. The figures given in the tables below, therefore, indicate not the exact amount of smut consumed, since with the smut there was a small but uncertain per cent. of sand, husks, small pieces of leaves, and abortive ears. The smut was drawn to the barn as fast as gathered and stored in bulk. It suffered no apparent fermentation or change of any kind before it was fed.

The smut was given to the cows mixed with their grain-ration, which consisted of corn, four parts; wheat-bran, three parts; ground-oats, two parts, and oil-meal, one part. The rough feed consisted of cornstalks cut into inch lengths and a small ration of hay, never exceeding six pounds per day, thus compelling the cows to derive the principal part of their nourishment from the cornstalks, the smut, and the grain-ration.

The four cows used in the experiment were grades, apparently vigorous and healthy, purchased in the vicinity of the College. The essential facts in regard to them are as follows:

Name.	Breed.	Age, years.	Due to calve.
Materna	Shorthorn	2	February 5, 1896.
Milla	"	7	December 5, 1895.
Hebe	"	5 (?) . . .	February 15, 1896.
Halo	Jersey	7	August 1, 1895.

The experiment began November 6, 1895.

Materna and Milla, the former six months in calf at the beginning of the experiment, and the latter due to calve early in its progress, were fed corn-smut in as large doses as they could be induced to receive it.

Halo, fresh in milk, and Hebe, six months in calf at the beginning of the experiment, received the smut in moderate doses only.

To each of the two cows, Hebe and Halo, two ounces of smut were given daily from the 7th to the 12th of November. On the 12th this quantity was doubled, each cow receiving four ounces.

On the 13th the ration of smut was again doubled, and each cow was given one-half pound. This quantity was again increased on the 15th to twelve ounces, and, finally, on the 17th, to one pound per day. A pound of smut in the condition existing at the time of the experiment would fill a two-quart measure.

For Materna and Milla, on the other hand, the dose was very rapidly increased from two ounces per day on the 7th and 8th of November, to four ounces on the 9th and 10th, six ounces on the 11th and 12th, twelve ounces on the 13th and 14th, one pound and a quarter on the 15th and 16th, one pound and three-quarters on the 17th and 18th, and finally two pounds per day of the smut each, from the 19th of November to the 12th of December, inclusive. In order to test the matter fully the amount given these cows was very rapidly increased after the 13th of December. On that day they each received three pounds of smut, on the 14th four pounds, on the 15th five pounds, on the 16th six pounds, on the 17th seven pounds, on the 18th ten pounds, and finally, on the 19th, eleven pounds, when the experiment closed. Ten pounds of smut shoveled into a half-bushel measure filled it. It is evident that the cows received in this daily ration more smut than they could possibly get in foraging over a cornfield after the removal of the crop, or in the stables in the winter when fed exclusively on cornstalks as the roughage of the ration.

At the beginning of the experiment the cows ate the smut with great avidity, and the two cows, Hebe and Halo, who received it in moderate quantities only, continued to prefer it to their grain-feed up to the close of the experiment. The two cows who received it in immoderately large quantities, on the other hand, manifested a less liking for it as the quantity was increased, although they did not reject it up to the very last day of the experiment.

No change in appearance was noticed in the dung until the 22d of November, when it was observed to be distinctly darker than that of other cows in the stable fed a similar ration of grain and fodder without the smut. In consistency it was somewhat harder than normal, and possibly in the cases of Materna and Milla somewhat scantier.

Except in the case of Milla, who dropped her calf on the 5th of December, the weights of the cows for the most part gradually increased. Certainly no ill-effect was noticed which could be ascribed to the feeding of corn-smut.

An examination revealed no variations in temperature that

could be ascribed to the corn-smut. Low temperature of Materna on November 8th was due to her having been exposed to a cold rainstorm for a couple of hours previous to the taking of the temperature. The temperature of Milla dropped suddenly just prior to her calving.

The pregnant cows were watched for signs of abortion, but none appeared.

Their milk-yield was regular and constant, in the case of the cows giving milk, and no indication was given of any variation in this respect from normal conditions.

On the very last day of the experiment five pounds of the corn-smut were given in the morning and six pounds at night to Materna and Milla. The following morning it was found that the night feed had not been entirely eaten up, approximately three-quarters of a pound of the mixed grain and smut being left in each manger. Their appetites for smut seemed to have been completely satisfied for the first time during the experiment.

On December 20th four pounds of smut were again fed these cows, mixed as usual with their grain-feed. While the cows did not absolutely refuse the mixture, they ate it with very evident reluctance. The bowels of Milla were loose from the heavy feeding of the day previous, and the cow seemed decidedly indisposed. Her temperature rose to 103° on the evening of December 19th, the day on which she received the eleven pounds of smut.

The behavior of the two cows, Materna and Milla, was watched for a week thereafter. They continued in good health, and gave no signs of any abnormal condition of the bowels. Their dung gradually lost the dark color, and the cows then became in every way normal.

Samples of the corn-smut were placed in the hands of the chemist for analysis, with the following results: Moisture, 8.30 per cent.; albuminoids, 13.06 per cent.; carbohydrates, 25.60 per cent.; cellulose, 24.69 per cent.; sugar, 4 per cent.; fat, 1.35 per cent.; ash—much sand, 22.50 per cent.

Dr. R. C. Kedzie, the chemist of the station, in commenting on this analysis, says:

The ash like that of grain was rich in the phosphates of potash and magnesium, but a large part of the ash was sand accidentally present from contact of the smut with the ground while gathering.

The smut was carefully examined for poisonous alkaloids, to see whether the alleged poisonous properties of the smut could be explained by the presence of any organic poison, but not a trace

could be detected, although a large quantity (twenty grammes) was used for this purpose.

It is surprising to see the avidity with which cattle will eat the corn-smut, and it seems difficult to explain their appetite for so repulsive a material. Perhaps the presence of sugar (4 per cent.) in the smut may explain this, for the reason that cattle are very fond of sugar.

The conclusion which can be safely drawn from this experiment is, that where cows are gradually brought into the habit of consuming large quantities of smut it does not seem hurtful to them. Whether the same thing would be true where cows, unaccustomed to smut, suddenly gain access to large quantities of it, must remain for future experiment. It is safe to say, however, that any quantity of smut that would be at all likely to exist in a cornfield or on the stalks as fed under normal conditions to the cows of the farmer, would not be dangerous to the health of the animals.

In 1868 Professor John Gamgee, in investigating the "corn-stalk disease," fed experimentally forty pounds of corn-smut to two cows, beginning with six and increasing to twelve ounces daily. The smut was fed with ground-grain and chopped-hay. To one cow it was given wet, to the other dry. The cow that received the wet ration gained in weight during the trial, the other lost in weight, but both remained well.

Dr. N. S. Mayo, in discussing the relation of corn-smut to "the cornstalk-disease of cattle," in *Bulletin No. 58* of the Kansas Experiment Station, records the experience of a farmer living near Manhattan who, believing that corn-smut was liable to produce the disease, took pains to gather the smut from the field. "One night his cattle broke into the enclosure where the smutty corn and smut had been thrown out, and ate all they wished; no injurious effects were noticed."

In *Bulletin No. 20*, United States Department of Agriculture, Bureau of Animal Industry, there is recorded the results of an experiment performed in January, 1894, of feeding corn-smut in large quantities to two heifers. The results are reported as follows:

Beginning on the morning of January 17, 1894, and continuing until noon of February 2 (sixteen and one-half days), the heifers were fed morning and evening with from two to three quarts of a mixture of corn-meal middlings and wheat-bran, and sixteen quarts of smut. The actual quantity of the fungus consumed by one heifer was sixty-one pounds, or a daily average of nearly three

and seven-tenths pounds, and by the other sixty-seven and one-half pounds, or a daily average of four and one-fifth pounds. The temperatures of the animals were taken every morning and evening. The animals appeared to be perfectly well throughout the time of feeding, and continued so for several months, during which time they were kept under close observation.

The results of our experiment coincide with those of other experimenters whose records are available, and may be taken as showing that no danger is to be apprehended from the feeding of smutty stalks, either to pregnant dairy-cows or to those in full milk. It is unquestionably true that the feeding of smutty stalks and corn perpetuate the disease from year to year through the medium of the manure. It is otherwise good management to haul manure directly from the stable to the fields, usually in sod, on which the corn is to be planted the following year, although such a course, while economizing the human labor in the care of the cows, brings about the best possible conditions for infecting the corn-crop. No statistics are at hand to show that the corn-smut is more prevalent in recent years than heretofore, although the practice of hauling out manure as fast as it is made has been common for many years.

To prevent the spread of the disease it may be expedient to remove the growing smut-boils before the spores mature, but the expense of going through the cornfield as often as would be necessary to accomplish this purpose would be so great as to render the method out of the question for the ordinary farmer. After the dark-brown masses of spores have become ripe and dry but little advantage can result from cutting them off and leaving them in the cornfield, where they would be blown about by the winds.

A NEW ANÆSTHETIC.—“Orthoform” is the title of a new German anæsthetic, a powdered preparation of benzomethylic ether, which affords immediate relief when applied to deep burns, ulcers, cancers, etc.

Recent researches into the birth of 16,000 foals show that 97 colts are born to every 100 fillies; that up to the end of the third month of gestation the fœtus is sexless, and that the sex is determined by the bodily condition of the mother in the fourth and fifth months. If the mare and fœtus be well nourished, the sex is likely to be a female.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS, PH.D.,
PRINCETON, N. J.

CONTAGIOUS CEREBRO-SPINAL MENINGITIS OF THE HORSE.—During the last few years the attention of veterinarians has been called to a contagious cerebro-spinal meningitis of the horse, a disease which appears to have originated during recent years. Drs. Siedamgrotzky and Schlegel have made an extended study of this equine disease in the province of Saxony, and have related their observations and conclusions in *Archiv. für Wissenschaft u. Prakt. Thierheilkunde*, Bd. xxii., Heft 4 and 5.

The disease was first recognized in 1879, and in nearly every year since that time has claimed its victims. In 1895, 122 horses, scattered through fifty-one localities, perished. The disease appears suddenly, with a severe chill, though often its coming is announced several days previously by a moderate gastro-intestinal catarrh.

Contagious spinal-meningitis begins usually with psychic disturbances. Sometimes it begins with disturbance in the function of the cephalic and cervical muscles, so that the prehension and mastication of food are impossible; deglutition is, however, undisturbed. There is sometimes tonic spasm of the cervical muscles. Frequently an animal seems to be in constant movement, walking slowly in circles either to the right or left. There is frequently a disturbance in the centres of coördination, so that the animals lose their equilibrium, fall to the ground, and often injure themselves. In rare cases they will bite and kick, almost without provocation, so that they can be approached only with great danger.

The subjective symptoms are: a rise of temperature to 105.5° or 106° ; an irregular pulse; defecation somewhat increased in frequency; urine high-colored, often containing albumin. The appetite usually remains good.

These symptoms become more pronounced during the first four to eight days, after which time the disease maintains its intensity with slight exacerbations and remissions, and leads, most frequently, by the tenth to the eighteenth day, to death by paralysis.

Convalescence takes place slowly, and requires several weeks. In case an animal survives three or more weeks, death may finally take place by reason of such complications as fracture, necrosis,

inanition, or septicaemia. Convalescence may, however, be incomplete, and in no small number of cases there remains a certain amount of psychic depression, so that these animals manifest all the symptoms of hydrocephalus or "dumminess." Furthermore, these animals may present disturbances of equilibrium, weakness of the lumbar muscles, and quite frequently amaurosis.

Out of 780 animals affected with the disease, 595 died—a mortality of 76 to 80 per cent.

Post-mortem examination shows a well-marked serous leptomeningitis. The changes in the organs belonging to the respiratory and alimentary tracts appear of little value in making a diagnosis of the disease.

The authors report that the disease is most prevalent in country districts, and the horses in the cities are seldom affected. No race of the horse is exempt. Those of middle age are especially susceptible, though neither old nor young are immune. The disease is most active in the spring, and seems always to die out with the beginning of summer. Long-continued confinement within the stable and over-feeding, especially with food which has spoiled, predispose to this disease.

The authors first made experiments to determine whether or not this so-called contagious cerebro-spinal meningitis was an infectious disease. They attempted to spread the disease by placing healthy animals with sick ones, and to ascertain the period of incubation. The first results of these experiments seemed to indicate that it was not an infectious disease. After further investigation they were led to the conclusion that the unknown cause of the disease existed outside of the horse's body as a facultative saprophyte, and, after the manner of a miasm, could infect a predisposed animal when the conditions were opportune.

By the year 1895 the authors had attempted to isolate and cultivate the unknown organism. These attempts were at first negative, because only mixed cultures could be obtained. Finally, a *motile micrococcus* was found immediately after the death of an animal, which germ grew well upon gelatin, agar, potatoes, and other ordinary culture-media. The most favorable temperature for growth is 38° C. No spores are formed; it is both aërobic and anaërobic, liquefies gelatin, and takes a stain when treated by Graham's method. Attempts to transmit the disease to healthy horses by inoculation with brain-substance and with pure cultures have been successful. The micrococcus does not seem to be pathogenic for the ordinary animals used in the laboratory.

In concluding their observations the authors dealt with the therapeutic measures indicated. The most important point lay in prevention, which consists in isolating the diseased animals and disinfecting the stables.—*Centralb. f. Bakt. u. s. w.*, November, 1896.

FRENCH.

UNDER THE DIRECTION OF DR. ALEXANDER GLASS,
PHILADELPHIA, PA.

ANALOGY OF IRIAN UVEITIS IN MAN, WITH DRY PERIODIC FLUXION IN THE HORSE.—Dr. Rolland has carefully studied and determined the nature of the disease in the horse called periodic fluxion—periodic ophthalmia—because it is considered by most veterinarians as almost incurable and leading finally to blindness. Previous to Roland's study of this disease, veterinarians had a very vague conception of the nature and the seat of this affection.

The author has clearly proved that in the horse there exist two varieties of periodic ophthalmia.

1. A true inflammatory ophthalmia, occurring in successive attacks and complicated with a hypopyon and even hypohema (pus and blood in the anterior chamber), which is analogous to rheumatismal iritis in man; the latter is also often complicated with hypopyon and even hypohema when the inflammatory process extends to the ciliary body.

2. A dry periodic fluxion, without any very apparent symptoms of irritation other than posterior synechia of the pupil. This is analogous to irian uveitis.

Rolland recommends a very simple and rapid means of detecting periodic fluxion in the horse. It consists in instilling into the eye of the horse a few drops of a solution of atropin. If the animal is subject to dry ophthalmia, and more especially, if it is inflammatory, pupillar adhesions of the iris (posterior synechia) can be detected at the end of about ten minutes.

I have dilated the pupils of a number of horses brought to the clinic of the Lyons Veterinary School for diseases other than of the eye. In two days I have found two cases of periodic fluxion; one horse, aged eight years, was without doubt affected with irian uveitis, or dry periodic fluxion; the other, four years old, was somewhat doubtful. The owners of these two horses said that they had never observed anything abnormal in the eyes of these animals; they had only noticed that both horses, previously kind

and gentle, had for several months been shying and showing fear of objects, so much so as to become unsafe to drive. With my knowledge of the functional symptoms of irian uveitis in man, this change in an animal's disposition can be explained without difficulty; these horses, seeing before their eyes black points, and at times cobweb-like structures somewhat phosphorescent, imagine that they are external objects and endeavor to avoid them.

Rolland believes that periodic fluxion of the eye of the horse is hereditary, and that such animals should not be used for breeding. I believe that this opinion is well founded, especially with reference to inflammatory periodic fluxion; that is to say, iritis or irido-choroiditis, which, being generally of a rheumatoid nature, should evidently transmit itself by heredity. However, I am of the opinion, from numerous observations upon irian uveitis, or dry periodic fluxion in man, that dry periodic fluxion in the horse is not hereditary, or at least has no well-defined tendency to be so.

However it may be, not being satisfied merely with the diagnosis of dry periodic fluxion in the horse with atropin, as indicated by Rolland, I have radically cured it by iridectomy, which has succeeded so well in man. I practised this operation in the two cases indicated above, and in one case the periodic fluxion was not doubtful. It is very evident that, as the animal in question ceased to shy and became manageable, iridectomy cures dry periodic fluxion in the horse as it does in the human species. We will even extend this treatment to inflammatory periodic fluxion if atropin, one of its curative agents, becomes ineffectual.—DR. GRANDCLEMENT, in *Ann. de Méd. Vét.*

ACTINOMYCOSIS OF THE UDDER.—A heifer, two and one-half years of age, presented abundant salivation and a swelling of the parotid gland, which was relieved by the local application of tincture of iodine.

Two months afterward a mammitis of one of the quarters of the udder was discovered. The general condition gradually became worse and she rapidly became cachectic. The animal was killed.

At the necropsy numerous actinomycotic centres were found in the parotid gland and in the inflamed quarter of the udder. The author thinks that a cure could have been effected with iodide of potash, if a correct diagnosis had been made.

Erhardt never observed an instance of the transmission of actinomycosis to neighboring animals.—*Ann. de Méd. Vét.*, November, 1896.

MONODACTYLE PIGS.—Vasilescu relates the complete history of a family of one-toed pigs created and kept at the veterinary school of Bucharest. From numerous observations he draws the following conclusions:

1. The starting-point of the single-toed type in the pig has been a teratologic form—monstrosity.

2. This peculiarity, which is hereditary, has also been observed by Aristotle.

3. By careful selection and breeding among these single-toed forms, monodactylism has been transmitted from generation to generation, and, as experiments at Bucharest have indicated, can be reproduced indefinitely.—*Rev. Vét.*

ENZOOTIC GASTRO-ENTERITIS FROM ACORNS.—Poncet mentions the appearance of this disease in several cows and bulls. One of the latter relished and freely ate acorns which fell prematurely in consequence of a violent storm, and succumbed to the disease. The others recovered with laxatives, alkalines, and emollient drinks.—*Ann. de Méd. Vét.*

ACCIDENTAL DEATH FROM MORPHINE.—The subject was a horse, two and one-half years, and had undergone an operation for abdominal cryptorchidism. After getting up, a hernia appeared which was reduced. In order to keep the animal quiet, and while he was still suffering from the effects of the chloroform, Ries injected subcutaneously fifteen grains of morphine.

Three-quarters of an hour afterward the animal became uneasy, perspired freely, and had a distressed eye, tremblings, and convulsions. Two hours later the convulsions became very violent and terminated in death after a short agony.

The author thinks that the dose of morphine was too large, and that we cannot be guided by the action of this drug in man.—*Ann. de Méd. Vét.*

VERMINOUS TYPHLITIS.—This disease, according to Lucet, is caused by the *heterakis dispar* living exclusively in the cæcum. The symptoms are similar to those common to all verminous diseases: diarrhœa, with yellow or brown, fetid feces, emaciation, pale mucous membranes, and difficulty in walking. The diagnosis is established by the presence of the parasites in the feces. At the necropsy, the cæcum is inflamed and filled with fecal matter containing the parasite. The author recommends the following

treatment : a mixture of bread-crumbs, boiled rice, milk, garlic, and wormwood-leaves.—*Rev. Vét.*

THE PHONENDOSCOPE.—This instrument, destined to replace the stethoscope, was devised by Drs. Aurelio Bianchi, of Rome, and Eugenia Bazzi, of Florence, Italy.

It consists of three principal parts : The resonator ; a detachable hard-rubber diaphragm, and a metallic rod with flattened end which screws into the detachable diaphragm.

The resonator is the essential part, and consists of a plano-concave metallic disk, $2\frac{1}{4}$ inches in diameter and $\frac{3}{4}$ inches thick, the concave side of which is closed by means of a thin, hard-rubber diaphragm, similar to the receiver (or transmitter) in a telephone, but with a slight bulge in the centre similar to the flexible bottom of an oil-can. Two soft-rubber tubes tipped with metal are inserted into holes in the plane side of the resonator ; the other end of the tubes having self-retaining ear-pieces.

The advantages of the phonendoscope are that it enables us to appreciate more clearly the normal and pathologic sounds emitted by the organs of the body ; many acoustic phenomena which are not audible by ordinary means of auscultation are rendered clear and distinct ; it is used to ascertain the form, position, and thickness of separate viscera, replacing percussion ; it does not present the disadvantages of all other stethoscopes, of limiting the area of auscultation to an exceedingly small area of the lung ; but pulmonary sounds are gathered from a considerable distance and from a considerable depth, and in many cases the cardiac sounds and murmurs are heard with unusual distinctness and clearness ; in myocarditis, when the cardiac sounds cannot be distinguished with the stethoscope, they can be distinctly heard with the phonendoscope, even through several thicknesses of clothing ; the phonendoscope is as great an improvement over the stethoscope as the latter was over immediate auscultation, and we have in it a most perfect aid to accurate diagnosis.

A LONG FAST.—The *Veterinary Journal* reports a case of prolonged starvation, for thirty-eight days, in a bitch which was accidentally buried under straw. She was very fat when lost, but when found was nothing more than skin and bone. Very little excrement was found. She was placed on a milk-diet and recovered.

REPORTS OF CASES.

TRANSVERSE FRACTURE OF THE AXIS.

BY G. L. WARNER, D.V.S.,
NEW YORK CITY.

Subject. A black gelding, twelve years old ; blind.

History. Following a broken bit, the animal ran away with a loaded truck, for about one hundred feet, and came in contact with a brick wall, with his head, with such force as to throw the animal down, remaining prostrate and still for about three minutes, when he gradually recovered consciousness and arose without assistance. After blanketing and resting for a short time, he seemed sufficiently recovered to resume his work, delivering the load upon the truck, and returning a distance of three miles to his owner's place of business. The only difference noticed by the driver was that the animal did not pull as hard on the bit as usual, and apparently staggered at times ; and about three hours after the accident a swelling commenced to show itself on the side of the neck over the axis. The accident occurred at 8 A.M., and the animal continued in service until 5.30 P.M. I visited him at 6.30 P.M., and noted the following symptoms :

Physical Examination. The head turned considerably to the right ; animal staggered when walking ; a large swelling over the axis on the left side. Temperature normal ; eating hay. Any attempt to turn the head to the left induced pain and uneasiness.

Diagnosis. Fracture of the axis, and advised destruction of the animal. This was deferred, and I revisited him the following morning and found the swelling increased, the head still further turned to the right ; had not lain down ; eating fairly well and temperature 102° F. ; increased unsteadiness in walking, and disinclined to move, holding back on the halter. Owner consented to have him destroyed.

Autopsy, held twenty-four hours later. Subcutaneous tissues stained and filled with serosity, the muscular structures bruised, with clots of blood ; the axis fractured transversely posterior to the odontoid process ; fracture simple, with the exception of a few small fragments ; the dura mater stripped from the spinous canal for about one inch anteriorly and posteriorly to the break ; the membranes were intact, but an exudation of blood between them and the cord, which was stained upon its surface with blood.

The extent of the fracture and lesions found were such as to cause much surprise at the mild character of symptoms exhibited during life, taken in conjunction with the work performed after the accident and to having ascended two runs, fifty feet long, to the third floor of the stable where kept, living forty-eight hours with a broken neck.

I. ANTE-PARTUM VAGINAL PROLAPSE.

II. EXCESSIVE ŒDEMA OF THE HEAD.

By W. H. DALRYMPLE, M.R.C.V.S.,
BATON ROUGE, LA.

I. A FEW weeks ago I was requested to examine a cow in a condition with which the owner was quite unfamiliar—"a protrusion from behind which might require amputation." I found a prolapsed vagina of at least six days' standing. The exact history of the case is uncertain, but the following is as much of it as I could ascertain. The animal was supposed to be pregnant, and was turned out on to a common pasture along with other cattle, and, I believe, other animals, as horses and mules. Six days previous to my seeing her she was noticed by a colored boy to be in the condition mentioned, but the lad never thought of notifying anyone of what he had seen, consequently the cow was allowed to remain as she was until the day I was called in to see her. The condition of the prolapsed organ can well be imagined; tumefied, callous, with strangulated bloodvessels, etc.

My first thought was the reduction of the prolapse, and to accomplish which I had the animal brought to the owner's stable in town, a distance of about a mile. After cleansing the parts thoroughly with a warm creolin solution, and well lubricating, I was successful, but not before exercising a good deal of patience and expending a considerable amount of physical strength. A web-truss was then applied, and no further inversion took place. The cause of the accident was surmised to be abortion, resulting from an injury while at pasture. Everything went on all right until about a week afterward, when the cow gave birth to a dead foetus in a state of decomposition. I did not suspect a foetus *in utero*, as the external appearance of the mother was not such as to attract my attention, and, after placing the vagina in situ, the os was so callous and contracted that I was unable to introduce more than two fingers, so that exploration of the uterus was impossible, otherwise I would no doubt have discovered the foetus. The tissues of

the parts having largely resumed a normal condition, no doubt permitted of relaxation, and the passage outward of the fœtus. The animal is apparently doing well.

Ante-partum prolapse being much less frequent than after parturition, is my excuse for recording this case.

II. Two weeks ago a bay gelding was brought to my infirmary with his head enormously enlarged, so much so, in fact, that it was held so low, on account of its weight, as to almost touch the ground. The whole of the soft tissues seemed to be engorged, giving one the idea that if the skin of the face was merely touched with the point of knife or lancet, it would burst open. Respiration was very much obstructed, the nasal cavities being apparently occluded. The tongue was very much swollen, and almost immovable. In fact, the head was of such a size that it would have been impossible for the animal to have got it into an ordinary sized bucket. The tumefaction was confined entirely to the tissues of the head those of the neck remaining normal. On the following morning the condition was, if anything, worse, due possibly to the horse carrying his head in a dependent position during the previous night. As death from asphyxia seemed imminent, I performed tracheotomy, after which the patient seemed to completely collapse, remaining recumbent for two hours. He revived, however, and shortly afterward partook of, with great difficulty, some very fluid gruel, placed in a deep tub, so that he could immerse his mouth sufficiently to suck a little. From that time the œdema seemed gradually to disappear.

While convalescing from the above condition the animal seemed to be affected with incipient diabetes; but whether this was merely incidental, or was dependent upon the former condition, I am not prepared to say. I treated the polyuria with iodide of potash, and fluid-extract of gentian, and the animal was discharged on the twelfth day. Histories of cases are among the rarest things to be got hold of in this part of the country, and this one proves no exception to the rule. The œdema seemed to be altogether local, and was only observed the evening before the animal was brought to me, but as to predisposing causes, it is only a matter of conjecture. The horse could not have had any debilitating disease previously, as he was at work up to the time the head was noticed enlarged.

Möller, in his work on surgery (Dollar's translation, p. 57), records a condition which seems very similar to the one under consideration, but I was unable to find any traces whatever of injury,

and I am sorry to say that I did not make an examination of serum from the head. The illustration given on the page above mentioned is a fair representation of my case, but the deformity is not nearly so great as in the case I treated.

I. MEDIASTINAL ABSCESS IN A COW SIMULATING TRAUMATIC PERICARDITIS. II. WHICH TESTICLE IS MOST FREQUENTLY DISPLACED IN CRYPTORCHIDISM?

BY S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

I. THE animal, a Jersey cow, had not been feeding as usual for about two weeks, when the services of a veterinarian, Dr. H. E. Wand, of Newtown, Pa., were requested. I am not in possession of the clinical details, but the symptoms so closely resembled traumatic pericarditis that a diagnosis of this disease was made and the slaughter of the animal recommended.

The autopsy revealed a few tubercles in the liver and on the peritoneum. In the lower portion of the posterior mediastinum was found a voluminous abscess with the following characteristics: Volume equal to that of the heart and oval in shape; the abscess was composed of a capsule of connective tissue about a quarter of an inch in thickness and easily enucleated from the surrounding tissue; the internal surface was smooth—a condition very much similar to that found in old cysts. The contents consisted of a thick, creamy pus with a fetid odor. The anterior surface of the abscess pressing against the pericardium caused a localized pericarditis, with adhesion, not only of the visceral and parietal layers, but the cicatricial tissue passed directly from the abscess-capsule into the heart-muscle and formed a firm union between the two. The pressure of the abscess against the left ventricle was so great that the latter, and in fact the entire heart was atrophied and showed a marked cavity on its posterior border, caused by atrophy from the pressure. A nail was found in the reticulum, but there was no fistulous tract leading in the chest-cavity, and there was only a small quantity of fluid in the pericardial sac which showed no signs of generalized inflammation.

The proximity of the abscess to the heart explains the similarity of the symptoms with those of pericarditis; the area of dulness on percussion was increased, although the heart-sounds on auscultation should have been less altered. This case shows an interesting fact

in that, although the heart was the seat of and surrounded by marked pathologic alterations, the animal showed no outward signs of disease for a long time, and, reasoning from the thorough organization of the abscess-wall and its adhesions, the lesion must have been old. This characteristic is seen in lesions of many of the vital organs in ruminants, which may attain a remarkably advanced state before being detected.

II. This question is frequently asked. In monorchids, it is, according to some, the left, and according to others, the right testicle that has failed to reach the scrotum. There are, to the writer's knowledge, no special anatomic or physiologic peculiarities why one testicle more than the other should be more susceptible of being arrested in its descent from the sublumbar to the inguinal region. The number of cases has not been recorded, but the right testicle, in his experience, was by far the one that was most frequently displaced, and in the majority of cases the position of the testicle was abdominal, although most surgeons claim to find it in the inguinal canal.

Degive (of Belgium), Donald, Cadiot, and Trasbot found the left testicle in monorchids most often displaced, while to Haelst, Hering, and Franck this anomaly occurred in most instances on the right side. Cabat, of the Toulouse school, found this abnormal situation of the testicle nineteen times on the left side and eighteen times on the right. This veterinarian also found the testicle in fifty-three cases as follows: eight, both testicles in the abdomen; thirty, only one in this situation; eight, in the inguinal canal. It would seem that, making the observation upon a large number of cases collected from different operators, the abnormal displacement of the testicles seems to be about equally distributed upon both sides.

TWO CASES OF LAMENESS IN THE REGION OF THE FEMORO-TIBIAL ARTICULATION.¹

W. E. A. WYMAN, V.S.,

McKILLIP VETERINARY COLLEGE, PRO TEMPORE; CLAWSON AGRICULTURAL COLLEGE, S. C.

CASE I. *Lameness due to tumor-formation in the triceps femoris.*
—The animal ran away and received a hard blow over the triceps femoris, about four to seven centimetres above the articulation;

¹ Presented at the clinic for post-graduates at the McKillip Veterinary College.

although slightly lame the owner continued to work the animal. Lameness eventually became so marked as to seriously interfere with locomotion.

On inspection, in the standing posture, the whole leg is abducted, the toe turned out a little, and the region of the stifle appears swollen. While walking there is marked swinging-leg lameness with abduction. The stifle- and hock-joints are flexed imperfectly, the animal refraining from flexing them as much as possible. The motion is mainly confined to the coxo-femoral and phalangeal articulations. When walking beyond a certain pace the toe drags and the animal stumbles.

On palpation, passive flexion of the stifle-joint is difficult, the tumor mechanically opposing flexion, which at the same time is painful. Palpation reveals a globular, hard tumor about ten centimetres in diameter and immovable. It involves the triceps femoris and large adductor of the thigh.

The fact that the animal made a good recovery in about six weeks makes it especially interesting. At that time palpation did not reveal anything abnormal, while inspection showed a slight abduction of the limb during trotting.

The treatment consisted of bilateral setoning.

CASE II. *Bilateral gonitis*.—Heavy draught-horse employed in hauling lumber. Lame at first in the near hind leg; fourteen days later the right leg became involved. The animal stood up most of the time, experiencing more or less difficulty in rising when down. Shortly after lameness was manifested, appetite became impaired, the animal rapidly losing flesh.

On inspection, while standing still, the animal continuously flexes the leg, elevating it until there is danger of falling over. During intervals of rest the joint below the patellæ appears greatly distended. The emaciated animal seems in pain, the abdomen visibly tucked up. When walking the legs are moved stiffly, in other words, there is decided swinging-leg lameness; the toe is apt to trip, and is worn. Whenever the animal turns sharply the excessive spasmodic flexion of the limb reminds one forcibly of stringhalt.

On palpation, passive flexion, while free enough, was actively opposed by the patient. The capsular ligament below the patellæ feels tense, no pain being produced by manipulation.

The animal, rapidly becoming useless, was killed. The post-mortem examination, made by the writer, revealed some blood-clots, the origin of which was not detected. There was an excess

of thick synovia. The usual pathological changes in the synovial membranes, cartilage, and bone were wanting.

The rapidly fatal termination of this case is of special interest, as such lamenesses, while practically incurable, often cover months if not years before the animals become useless.

REMEDIES WORTH TRYING IN ECZEMATOUS ERUPTIONS OF DOGS.

Ichthyol ointment, 2 to 5 per cent., with equal parts of lanolin and cosmoline.

Ichthyol tar-soap moistened and rubbed on the itching parts and allowed to dry.

Potassium permanganate solution of the strength of 1 to 3 per cent. where the dogs are peculiarly irritable.

Where the surfaces are widespread and moist, dust with equal parts of talcum, lycopodium, and boric acid.

For use in the house on pet-dogs that have the range of the parlor and lounge on the rugs and furniture, try a 15 per cent. solution of hyposulphite of soda.

Creoline baths of the strength of 5 per cent. will give very great relief for many hours.

In the finer toy varieties, try a 1 per cent. solution of trikresol; ten grains of boric acid to the ounce of this solution adds to its efficacy in some cases.

Chloro-naphtholeum, two ounces to the gallon of water, is a useful medicated bath for the large varieties of dogs, and is destructive to parasitic forms of life.

Trikresol soap is far safer and better than carbolic acid soap for bath purposes when washing dogs frequently.

Do not use bichloride of mercury solutions in moist eczema.

Starch and oxide of zinc may be used separately or in combination as a dusting-powder alone, or after any of the watery solutions, and tend to hasten healing of broken or denuded parts.

In chronic and long-standing cases, where fissures of the skin have formed and the animal tends to bite the affected parts, causing bleeding, touch them a few times with Monsell's solution of iron, and then use one of the powders.

For softening the parts, equal portions of lanolin and pure cosmoline, with ten grains of boric acid, will be found useful and cleansing.

EDITORIAL.

LOSSES IN THE VETERINARY WORLD.

THE veterinary world loses, in the deaths of Prof. Finlay Dun, of Great Britain, Editor Lanzilotti Buonsanti, of Italy, and Prof. Charles Cornevin, of France, three able exponents of veterinary science.

In the therapeutic world the name of Finlay Dun is a very familiar one wherever the English language is read or spoken. Perhaps no English veterinary work has had so wide a sale as has his book on veterinary medicine; accepted as an authority, and covering the widest range of useful medicinal preparations, it has done much to advance veterinary science.

Dr. Buonsanti, as founder and director of one of the leading Italian veterinary periodicals and a writer and contributor to veterinary literature, made for himself a recognized place in the scientific world of comparative medicine, and added much to the progress of medical science and its recognition in his own country.

Prof. Cornevin was an honored instructor in the veterinary school at Lyons, France, where for many years he had endeared himself to a large number of students, and afterward practitioners, and these will all learn with sadness of his death and better appreciate his valued instruction as years go by. Prof. Cornevin was a contributor to many foreign journals, and recognition as an able writer was very generally accorded him.

FOR THE BEST-EQUIPPED MEAT-INSPECTORS.

WE most heartily concur in the following opinion, voiced by Dr. C. W. Stiles in an address before the Maryland Medical Society, and we are sure that much good will flow from the thorough investigation made by Dr. Stiles of many private slaughter-houses in our cities and towns:

"My second suggestion relates to the director of the proposed municipal abattoir. If the slaughter-house is placed under city control, the natural tendency among certain people will be to claim that patriotism calls for the appointment of the director according to his political pull. I would modestly suggest that an unsuccessful blacksmith, or barber, or a physician, dentist, or druggist who

has failed in your State examination is hardly the person to be appointed director of a municipal abattoir, notwithstanding his political pull. In this matter of public health we are dealing with life and death, and we must have a man equal to the position. Personally, I believe that the man appointed should be a veterinarian, and should be, *ex-officio*, a member of the local board of health. And by this word veterinarian I do not mean a quack horse-doctor, but rather a well-educated and scientifically trained graduate of a reputable school, and, besides that, a man of experience in gross pathology and meat-inspection. The scientific meat-inspector can render public service in the prevention of disease among men and live-stock to a degree scarcely dreamed of by the non-technically trained laity."

Every chief magistrate or executive officer of our cities should be acquainted with the results of the investigations made in this direction by Dr. Stiles, and we are sure that no better line of action could be adopted by veterinarians than to place the same before such officers and all boards of health.

AN IMPORTANT MEETING.

THE ninth International Congress of Hygiene and Demography will be held in Madrid, Spain, April 10 to 17, 1898. On another page we give a synopsis of the subjects connected with veterinary science on which papers are solicited. Several of these topics are of much importance to us at this particular time, and we trust that some of our American colleagues will forward papers bearing upon the same. The importance of these gatherings can hardly be overestimated, as they give national importance to our work and impetus to reform movements that are of vital importance to our welfare as a profession. We wish the Congress the greatest possible success, and note with pleasure the progressive spirit of our Spanish colleagues in promoting the undertaking.

OMAHA, 1898.

THE decisions of the Executive Committee of the U. S. V. M. A. to hold the meeting this year in Omaha, Nebraska, in connection with the Trans-Mississippi Exposition will call the members to a new field. It will be incumbent upon the part of the Western members to insure to the East very favorable railroad rates to secure a proper attendance of these members. The duty falling

upon the few members of the Association in Nebraska and closely situated territory will be a heavy one, but oftentimes a few earnest men can do more than a large body of indifferent ones.

VETERINARIANS all over the land, who have watched the great struggle for freedom and independence of the brave people of Cuba, will now fully appreciate the shocking conditions that exist there—the suffering, want, loss of everything, and death of the heads of many families, and be touched to aid in the relief that should be prompt and generous from every American who appreciates what these people are struggling for. A small contribution from every one, no matter how small, will tend to diminish this sad state. Send it to your mayor or to any daily newspaper.

MANY meetings of State Associations will convene during February and March, and much work will be planned for the near future, all of which is of the greatest importance to the veterinary profession. Legislation will demand much time and effort, and all veterinarians should acquaint themselves with the needs of their respective States and cities, and work for the common end of higher veterinary education.

THE veterinarians of Ontario are thoroughly aroused to the great injustice done them by those in authority relative to the worth of examination and extermination of bovine tuberculosis. Many pertinent inquiries and urgent letters for a better recognition of the profession have gone up to the seat of government, and we are sure that their protests will not go unheeded. They should be sustained by their colleagues everywhere, and we are glad to note that some of the leading agricultural papers are in strong sympathy with the movement to place this work in competent hands only—with those educated in this work.

CHICAGO veterinarians have undertaken the important task of formulating rules for the examination of horses for soundness. Already many are appreciating the great scope of the subject and the many difficulties surrounding it. Already the differences in judgment are to be noted, and we fear that after all there is much

to be left to one's judgment in this work, viz., acquaintance with the work the animal is to do, the price asked, and a knowledge of those who propose using it, as to how valuable our services may be, in this direction, to those who employ us.

WE are glad to note the progress of the veterinarians of the "Windy City" toward a recognition from the Civil Service Commission charged with the selection of a City Veterinarian and the selection to be made by competitive examination. The commission of Chicago has just won a great victory in the courts as to their right to perform this work for the city. They are a body of good citizens, competent and capable, and have already given evidence of their sincerity and earnestness in this work. It is the only proper plan for the selection of any public employé.

NEW PUBLICATIONS.

CLINICAL DIAGNOSIS OF LAMENESS IN THE HORSE. By W. E. A. WYMAN, V.S., Professor of Veterinary Science at Clemson Agricultural and Medical College, South Carolina. Published by Wm. R. Jenkins, New York City.

THIS work, of about 175 pages, is a very carefully prepared exposition of the always interesting and important subject of lameness from a clinical standpoint. While it is prepared in such form as to be readily understood by the student, arranged in chapters, with a copious index, glossary, and a number of illustrations, it will be equally worthy of perusal by the practitioner. All forms of lameness, the structures involved, and local and constitutional causes and symptoms, general and special, are well elucidated, and the table of contents and index make it possible to quickly review any obscure case one might have, and find much to aid one in making a diagnosis. The many points of importance of this subject will find a welcome refreshing in the minds of the everyday practitioner, and some additional experiences by well-known practitioners have been added which are of much interest. The author acknowledges his indebtedness to Prof. Möller, and has quoted other eminent authorities on lameness, and presents a book worthy of recognition by our colleges and wherever veterinary science is taught. The typographical appearance and excellent paper add

much to its attractiveness, at the same time adopting a popular form and size. The author has dedicated this contribution to his alma mater, the New York College of Veterinary Surgeons and School of Comparative Medicine, a grateful recognition of the earnest work being done by this institution as a school of instruction.

THE UNIVERSITY OF PENNSYLVANIA CATALOGUE is out for the year 1897-98. It is a book of nearly five hundred well-filled pages, containing a short account of every department, its instructors, facilities offered, expenses, list of students, and a budget of information relative to the work done by this well-known institution. A complete list of the graduates of every department in 1897, and a list of the various societies identified with the college, with an extended index, complete the catalogue.

A VICEREGAL VISIT. A few minutes after noon, December 22d, Lord Aberdeen visited the Ontario Veterinary College, Toronto, where he was received by the Principal, Professor Smith, and the members of the Faculty. His Excellency was conducted through the museum, lecture-rooms, and laboratories of the college, and expressed himself as much pleased at the excellence of the arrangements, especially noticing with pleasure the admirable specimens in the museum. Reaching the large and beautifully-arranged histological rooms, the party found the students assembled, who received the Governor-General with applause. Principal Smith, in his capacity as chairman, alluded in graceful terms to the kindness of the Governor-General in visiting the college, and requested from his Excellency a few words. Lord Aberdeen graciously responded, and, in the course of his address, referred in felicitous terms to the presence of so many American students at this college and to the great reputation enjoyed by the institution in all parts of the English-speaking world. At the conclusion of his remarks a hearty vote of thanks to the Governor-General for his visit was proposed by Dr. Thorburn, seconded by Dr. Duncan, and carried with great applause. The proceedings terminated with three hearty cheers for the Governor General, after which he inspected some of the fine saddle and other horses in the stables of the college.

CONTROL WORK.

Massachusetts. The annual report of the Board of Cattle Commissioners has been transmitted to the Secretary of State. It is an extensive document, covering 150 pages of typewritten matter, and gives in detail the year's work of the board and various suggestions for continuing public and animal health.

After a list of the local inspectors in all the towns and cities of the State, the report recites the change inaugurated last spring, by which the annual inspection of cattle was made just before the stock went to pasture, with the instructions sent to inspectors, and the result of the work. It is believed that the inspection was made much more thorough by this change. The inspectors were ordered to complete their work by May 1st, and on May 12th those who had delayed were ordered to close up at once, and that no more cattle should be quarantined until another inspection was ordered, unless some one reported badly diseased animals to boards of health. Inspectors of the border-towns were also reminded of the regulations relative to the admission of cattle from without the State.

The report has a table giving the number of cattle assessed in each town, the number tested by tuberculin, the number condemned, the amount of compensation awarded, and the amount of State tax paid from each town, from which it appears that 210,801 cattle were assessed, 9991 were tested, 5246 were condemned, and \$179,735.52 was awarded to owners. The per cent. of animals condemned of those considered suspicious by physical examination, 52.5, is substantially the same as in former years, and confirms the uncertainty of physical examination. In addition to the above, there were 254 cattle condemned on which warrants had not been settled, these amounts and other outstanding bills amounting to \$10,712.40

The towns in which the larger amounts of money for condemned cattle were disbursed were: Acton, \$4751.50; Andover, \$1922; Ashby, \$1043; Billerica, \$5477.51; Bolton, \$1353; Boston, \$3543.80; Roxboro, \$1418; Carlisle, \$8697.50; Chelmsford, \$4854; Concord, \$3065; Conway, \$1426; Dracut, \$5869.50; Framingham, \$1377; Gardner, \$2109; Grafton, \$1109.50; Granby, \$1031.50; Greenfield, \$2067.50; Groton, \$1068.50;

Hardwick, \$1159; Harvard, \$2150.50; Haverhill, \$1374; Hopkinton, \$1107.50; Lanesboro, \$1320; Leominster, \$2363.50; Lexington, \$3937.50; Lincoln, \$3563; Littleton, \$1192; Lowell, \$1448.50; Maynard, \$3977.50; Methuen, \$1311; Natick, \$1726.50; Newburyport, \$1424.50; Newton, \$1189; North Andover, \$3166; Peabody, \$1185; Princeton, \$2952; Sterling, \$1613.66; Stow, \$2801; Sudbury, \$14,285.18; Sutton, \$1344.50; Waltham, \$2440; Wayland, \$2084.50; Westboro, \$2227; Westford, \$1018.50; Westminster, \$1018.50; Weston, \$3202; Westport, \$1542; Worcester, \$2690.25.

The financial statement of the board is as follows:

Paid for 5275 tuberculous cattle	\$179,867 52
Paid for 160 cattle, no lesions	5,581 04
Quarantine expenses	2,928 11
Arbitration	27 75
Killing and burial expenses	125 93
Total	\$188,530 35
Average per head 5435 cattle	34 12
Commissioners' salaries	7,283 00
Agents' salaries	13,561 54
Clerks' and stenographers' salaries	5,201 04
Expenses, commissioners	3,781 80
Expenses, agents	11,869 28
Expenses, office	3,154 56
Expenses, laboratory and exp. work	1,515 17
Expenses, implements	1,883 75
Expenses, quarantine stations	3,870 35
Expenses, glanders, killing, and burying	87 00
Total	\$52,207 49
Total payments	240,737 84

The receipts of the year were \$5217.29, of which \$5039.74 was for hides and carcasses.

The report says the work of animal inspection has resulted in the gradual reduction of the number of cases of generalized or advanced tuberculosis, as is shown by the records of the last three years.

Previous to the legislative act private veterinarians had reported tests as follows:

	Tests.	Condemned.
Dr. W. E. Peterson	1498	838
Drs. Lyman and Osgood	660	314
Dr. J. F. Winchester	11	9
Dr. M. Bunker	35	24
Dr. G. N. Kinnell	42	37
Dr. G. N. Kinnell	295	3

	Tests.	Condemned.
Dr. C. S. Moon	49	22
Dr. J. H. Seale	8	8
Dr. A. H. Streeter	18	9
Dr. A. L. Crandall	14	2
Dr. A. S. Cleaves	3	1
Dr. C. A. Hamblet	18	17
Dr. W. S. Eaton	5	4
Dr. E. Knobel	5	5
Dr. J. H. Dutton	40	11
Dr. J. W. Robinson	28	18
Dr. S. O. Fowle	1	1

The work of the inspecting agent, to see how owners were obeying the requirements relative to sanitary measures, showed as follows :

	First visit.	Second visit.	Third visit.
Filthy stables	11	4	2
Unclean stables	42	7	4
Clean stables	35	32	4
Satisfactory stables	52	33	3

In the work of thorough disinfection where tuberculous cattle had been removed, the agent reported as follows :

	First visit.	Second visit.	Third visit.
Filthy stables	397	43	3
Unclean stables	141	37	11
Clean stables	120	211	106
Satisfactory stables	59	234	26

Under the law for the inspection of slaughtered animals at licensed slaughter-houses and on the premises of owners, 188,391 cattle, 405,368 sheep, and 1,471,679 swine have been inspected, and 302 cattle, 2 sheep, and 105 swine were condemned.

The work of inspecting animals from without the State at the public markets at Brighton, Watertown, and Somerville was as follows :

Cattle for beef	346,889
Sheep	937,070
Swine	1,419,466
Calves	139,067
Horses	28,822
Cattle released on certificate	19,468
Cattle tested at stations	227
Cattle released at stations	199
Cattle condemned at stations	28
Cattle condemned (actinomycosis)	2

During the year 7068 cattle have been admitted to the State on special permit.

In the laboratory and experimental work several herds have been retested with tuberculin from time to time, in attempt to ascertain sources of reinfection and immunity through repeated tests, but the tables of results given are valueless.

An investigation has also been carried on, under the direction of Dr. Theobald Smith, to ascertain whether bovine and human tuberculous bacilli are identical. He concludes that as found in the sputum they are not identical, and that human sputum is not specially dangerous to cattle.

The report says that while bovines may not be susceptible to human bacilli from sputum, it by no means follows that humans are not susceptible to the bovine bacilli, but expresses the opinion that the latter danger has been greatly exaggerated.

The report argues that the present practice of condemning the meat of slightly diseased animals is extravagant and wasteful.

The payment of full compensation for condemned cattle is criticised.

The appearance of Texas fever in this State in August, through cattle brought from the State of New York, causing the death of thirty-five or more animals, is extensively treated.

A number of cases of actinomycosis during the year are reported among cattle, and the disease is fully described, with details of its recent appearance.

The year has 485 cases of glanders reported, of which 402 have been killed, 21 were released, and 2 are under observation. This is an increase of 101 reported over 1896, and of 61 cases killed.

The action of the Boston Board of Health in securing a legislative act putting glanders, farcy, and rabies under its control, and ignoring the cattle commission, is criticised as a precedent that may be mischievous and pernicious.

There were 19 dogs reported as afflicted with rabies during the year, and in addition an outbreak at South Hadley in a herd of cattle in August, resulting in the loss of several cows.

The report is accompanied by a report from Dr. Langdon Frothingham of his work in the examination of portions of organs suspected of the disease, including tuberculosis, actinomycosis, and glanders, a total of 137. There were besides 24 inoculations for glanders, and 5 of rabies. He also discusses the present practice of destroying all carcasses infected with tuberculosis, and suggests the use of the carcasses for food where the disease is clearly localized.

Dr. Theobald Smith's report of his work is also given in detail of much interest.

National. The Department of Agriculture announces the successful production of a curative serum for hog-cholera. It is announced that Congress will be asked to appropriate a large sum of money for its production and use. Experiments made with the serum are said to have proven successful in 82 per cent. of the animals treated. As the fatalities in many outbreaks reach this percentage, it promises more than any line of investigation yet pursued.

Maryland. 1. A well-regulated system of slaughter-houses is as necessary to the public health as is a well-regulated system of schools to the public education.

2. Every slaughter-house is a centre of disease for the surrounding country, spreading trichinosis, echinococcus disease, gid, wire-worm, and other troubles caused by animal parasites, and tuberculosis, hog-cholera, swine-plague, and other bacterial diseases.

3. The important factors concerned in spreading these diseases are offal-feeding, drainage, rats, and dogs.

4. These diseases may be greatly held in check, and in some cases entirely eradicated, in two ways: First, by a reduction in the number of premises on which slaughtering is allowed, on which account it is urged as all-important that there be a segregation of the slaughter-houses, so that all the butchers of any given town will be compelled to do their killing in a common inclosed and restricted area. In abandoning slaughter-houses, care should be taken to destroy the rats, in order to prevent the spread of infection. Second, by regulating the factors concerned in spreading the diseases: (*a*) Offal-feeding should be abolished; (*b*) drainage should be improved; (*c*) rats should be destroyed; and (*d*) dogs should be excluded from slaughter-houses.

5. A licensing of slaughter-houses by the State boards of health and the employment of an assistant State veterinarian, whose sole or most important duty shall be a sanitary supervision of all places where animals are slaughtered for food, are necessary.

6. The appointment on every local board of health of a competent veterinarian, whose duty it shall be to control the class of meat placed upon the block, is urged. All meats should be inspected at the time of slaughter, thus securing for the local consumer the same guarantee that the National Government provides for the foreign consumer and for interstate trade.

7. The prohibiting of the raising of any kind of stock within the premises of slaughter-houses is advised, as are also State regulations to the effect that when a stock animal (horse, of course, excepted) once enters the premises of a slaughter-house it must never be allowed to leave those grounds alive, but must be slaughtered within two weeks' time.

8. In justice to butchers, and as a protection to the consumer, I strongly advocate the introduction of the German Freibank in connection with every municipal slaughter-house.—*Summary of Address of Dr. Charles W. Stiles before the Maryland Medical Society.*

LEGISLATION.

New York State. As usual, the Empire State again takes the lead in various directions of great interest to veterinarians.

The most important is Senate Bill No. 89, introduced by Mr. Wray. It has for its object the extension of the time allowed for registration with the Board of Regents, without examination, of all graduates whose diplomas are issued before July 1, 1898. This measure has been introduced at the request of a large body of veterinary students now attending the veterinary colleges in New York City, and as so much feeling and criticism have been engendered by the very high standard raised in New York State, which threatens to close at least two of the schools and to deny the other a sufficient number of students to provide for the future needs of the State in qualified veterinarians, it is thought that this measure will be fought for very hard by those directly interested in what it contends for.

Assembly Bill No. 283, introduced by Mr. Sullivan, is intended to relieve the veterinarians of Greater New York City from jury duty, in keeping with the other scientific professions. This relief should be afforded to all the State or to none, though there is the danger-side to all such legislation. Jury service and its high duties are among best safeguards of our nation, and these places should exempt from service the smallest number of educated men and good citizens it is possible to do, and every man should endeavor to throw around the bench of justice the strongest safeguards possible, lest these important posts fall as prey to the professional juryman, the jury-fixer, and the cause of justice becomes feeble in her own temple.

Assembly Bill No. 300, introduced by Mr. Coughtry, and referred to the Committee on Public Health, is the same measure that has been twice defeated, and is planned to reopen registration of new graduates for a period of two months, to enable a number of unqualified men throughout the State to register. Those interested in this measure claim that they were otherwise qualified to do this under the law that closed the doors in 1895 to these registrations, and, having neglected to take advantage of these provisions, now ask special legislation in their behalf in the form of an enabling act. This measure should be scotched in committee, and should be buried so deep that it will never again be resurrected. Veterinarians all over the State should write and ask for the defeat of this measure.

GLEANINGS.

Physical inspection in part by one veterinarian and two laymen inspectors caused the condemnation of 268 head of cattle in Philadelphia, out of some 129,026 head examined—surely an extraordinarily small number, and probably some of these in dairies by tuberculin-test. What about the inspection?

Dr. W. G. Hollingsworth reports successful results with electricity in tongue-lollers, and cites a case in a fast mare that kept her tongue continuously out when in harness. Used a D.D. light current battery, No. 4, home medical pattern, dry-cell of one volt; wires were placed from the carriage-seat to the bit, fastened on each side to the bit. When the tongue was out the current was turned on, and when the tongue was returned to the mouth the current turned off. One week's trial brought the desired result. He reports its successful use in a balky horse.

Dr. J. C. McMeil, of Pittsburg, during the summer of 1897 applied the electrical current in the same manner to a farm-horse that would balk when ploughing. Its use brought out an investigation by a member of the Humane Society, who, after watching its application, highly praised the method as wholly superior to the many methods, often of abuse, in moving balky horses.

The extensive outbreaks of the so-called cerebro-spinal meningitis in Maryland and Illinois during the past fall and winter have caused very great losses to the farmers and others in the districts where the disease prevailed in enzoötic form.

HERE AND THERE.

CHICAGO'S LATEST EFFORT TO RAISE MONEY FOR USE IN IMPROVING ITS STREETS AND PARKS.—Chicago people are interested in the new wheel-tax lately levied by the municipal authorities of that city. The owner of a one-horse carriage must take out a license, paying one dollar a year; a two-horse outfit will cost two dollars a year, and so on. A bicycle-tax ordinance is also agitating the town. Many people claim that these ordinances are unconstitutional. Suburban riders say that the new law may cause the arrest of many non-residents. The new vehicle-label has been selected by City Clerk Loeffler. The tag, which is to be attached to the harness of the horse, is made of high-grade German silver, the background oxidized, and all raised surfaces polished bright. For one-horse vehicles the figure 1 will appear, raised in the centre in silver on a red enamel ground; for two-horse, the figure 2 will appear on a blue ground; for the three-horse, the figure 3 on a yellow ground; for the four-horse vehicle, the figure 4 on a green ground. The label is attached by metal clamps, which will be fastened to the harness.

This tax is to be used exclusively in the construction and maintenance of good roads.

An investigation on Texas fever, which may result in much profit to cattle-owners and breeders in this State, is being conducted at the Veterinary Department of the University of Pennsylvania. Texas fever is a disease which attacks cattle going from Northern States to Southern States, and causes death. This practically prevents the sending of fine-grade cattle from this State to Texas, where there is a good market for them.

The Fleshers' Trade Protection Committee of Glasgow, Scotland, has sent a circular to shipowners saying that after December 1st the members of their organization will not purchase United States or Canadian live-stock carried by shipping companies who transport live-stock for importers not belonging to the organization.

A white colt, by Palentine, with red ears, has been dropped at Oak Hill Farm, near Nashville, and hundreds have visited the equine freak.

Queen Victoria owns a dress manufactured entirely of spiders' webs.

Good horses, wanted by buyers either for the track or road, are said to be worth 20 per cent. more than they were last year at this time.

A two-year-old colt was gelded April 20, 1895, near Toledo, Ohio. Two days later he was turned out with a mare. April 1st last the mare dropped a horse foal.

The cutting of a rope, to which a horse was tethered, by a railroad train, at Niagara Falls, was followed by the animal dashing into the waters and being swept over the Horseshoe Falls to destruction.

Henry Ward Beecher once said that society owes to the horse a debt of gratitude a thousand times greater than it does to thousands of men who abuse him. He has ministered to progress; has made social intercourse possible when otherwise it would have been slow and occasional, or altogether impossible; he has virtually extended the strength of man, augmented his speed, doubled his time, decreased his burdens, and, becoming his slave, has relieved him from drudgery and made him free. For love's sake, and for the sake of social life, for eminent moral reasons, the horse deserves to be bred, trained, and cared for with scrupulous care. The teaching of men how to do it has been left too long to men who look upon the horse as an instrument of gambling gains or of mere physical pleasure.

The late Sir Arthur Helps said: "Whenever I see horses suffering from too tight a check-rein I know that the owner is unobservant, cruel, or pompous. He is unobservant, or he would see that his horses are suffering. He is ignorant, or would know that a horse loses much of his power of pulling and cannot recover himself if he stumbles; and he is cruel if, observing and knowing, he does not remedy it. He is pompous and vulgar if he prefers that his horses rear their heads on high and rattle their trappings to being dealt with humanely and reasonably. When I look at the coat-of-arms on these carriages I know who are the greatest fools in the upper classes. The idiot and brute of a coachman likes to sit behind these poor, tortured, faithful martyrs, with their reined-up heads, but his master ought to know better."

Many Philadelphia veterinarians will remember the trick-horse "Mazeppa," owned and exhibited by Mr. Hugh Maguire, who has just obtained a verdict of \$13,454 in the United States Circuit Court from the New England Railroad Company, Mazeppa having been killed in a railroad accident.

"Never tell me that a horse has not a soul," says the *Chicago Herald*. "That soul may not bear a through tag to eternity, but while it abides it holds the principles that pertain to immortals. The other day I was passing along the street with a great American beauty in my hand, the stem of which was nearly as long as an alpen-stock. As I strolled by a horse standing on the corner of State and Monroe the rose that I carried brushed the animal's nose, and he turned lovingly after it."

A horse supposed to be suffering from rabies, following the appearance of a rabid dog at Smyrna, Delaware, attacked several other horses, and when approached by its owner, turned, and the owner only escaped in his flight by the animal being seized with a paroxysm and falling to the ground. The animal was shot before further damage was done.

Many veterinarians received a full year's subscription to the *JOURNAL* for 1898, or a Glass book on *Diseases of the Dog*, in their stockings, as a reminder of Santa Claus of former years.

Dr. A. W. Bitting, of Purdue University, discussed municipal control of dairy-herds, and showed its necessity, at the Indiana Dairymen's Convention in December. Only nine cities in Indiana have milk-inspection, and the system is not uniform or practical.

Dr. J. N. Hurty, Secretary of the State Board of Health, referring to the exclusion of 12,000 pounds of milk daily from the Chicago market, because of too dirty dairies and the presence of typhoid fever, and the loss that thus fell on Lake County farmers, urges the forming of local sanitary associations to govern the production, care, and proper sanitation of dairies, and thus to back up the State Board in their efforts to secure proper inspection of dairies, and, by controlling the dangers of unwholesome milk, increase the sale of pure milk, and thus aid the dairyman.

A Philadelphia angora cat, losing by death her four kittens, pre-empted two puppies from a neighboring kennel, and is now proving a true foster-mother to the puppies.

The Grand Rapids Veterinary College is associated with the Medical College of the same name as its Veterinary Department. Some eleven students are in attendance, others are expected to enter. The term is two years of six months each. Dr. H. Rutherford, formerly of the Detroit Veterinary College, is director.

Flemington, N. J., reports an outbreak of rabies among a flock of some fifty sheep, following the advent of a rabid dog among them.

Three-year-old steers are selling in Palisade, Nev., at \$30 per head.

The Dominion of Canada Cattle-breeders' Association in December resolved to ask for such modification of the quarantine law as will admit cattle from Great Britain on the certificate of veterinary inspectors in that country that they have passed the tuberculin-test.

Dr. Carl Schlatter, of Zurich, Switzerland, has successfully accomplished the triumph of major surgery in removing the stomach in its entirety from a woman, with recovery and an improved condition of the patient over her previous physical health for many months. What a revelation!

Germany announces paper bottles.

Chief Government reindeer herdsman William A. K. Jeilman, now in Alten, Norway, has been cabled to send six hundred reindeer for draught purposes in the Klondike region.

Russia has half the world's horses.

The use of condensed meats in the Alaskan gold-regions is strongly urged by the Government. Their easy transportation and keeping qualities strongly recommend them.

Paris has an official rat-catcher.

The citizens of Cedar Rapids, Iowa, will have the opportunity of purchasing milk from one of the most complete sanitary dairies of our country. Thoroughly inspected and tested cattle, scrupulously clean animals, stables, and attendants, and the most improved appliances for handling, Pasteurizing, and delivery of milk, insure a pure and healthful supply.

Nearly \$5,000,000 worth of patent medicines are exported from the United Kingdom each year.

The Chicago horse-show was a grand financial success. The receipts are said to have exceeded the disbursements by some twenty-two thousand dollars. The total premiums reached the sum of forty-five thousand dollars. It will prove a great boon to equine interests all over the country. The selection of veterinary inspectors this year was an innovation, and will now, we are assured, become a recognized feature.

Mr. George McLaughlin has an interesting article in the November 25th issue of the *Independent*, descriptive of the work and future of the veterinarian.

SOCIETY PROCEEDINGS.

WESTERN ONTARIO VETERINARY MEDICAL ASSOCIATION.

THIS Association met at the Masonic House, Stratford, on December 31, 1897. Meeting opened in the morning at the appointed hour. The President, Dr. Gibbs, occupied the chair and called the meeting to order. Minutes of the previous meeting were read and approved.

After the usual routine of business the report of the committee to attend the Ontario Veterinary Medical Association, held on December 24th, at Toronto, was taken up, and Dr. Black, of Clinton, who was one of the committee, was called on to report. He referred to the petition that was sent to the Minister, Hon. John Dryden, some time in March, 1897, in search of better legal protection. The minister at first seemed to be interested in the profession, and he gave us to understand that we were asking nothing but what we deserved as a profession, and now he slaps us in the face by appointing Lieut.-Col. McCrae as a public instructor in the use of tuberculin. Col. McCrae, it was claimed, was a layman, and did not know anything about the subject of tuberculosis or the tuberculin-test. He also stated that by the look of things at the present time, the government was not interested in our profession as to give us better legal protection, and that each and every one of us see the member for his district and try to get the members to bring up this bill at the next Parliament sitting.

Drs. Gibb, of St. Mary's, and Steele, of Stratford, also referred to this bill, and agreed with Dr. Black in his statement, and also referred to the fact that Lieut.-Col. McCrae was not qualified for this position as to the use of the tuberculin-test, as he was not a qualified veterinary surgeon, and that the tuberculin-test needs to be safeguarded by certain precautions not possible to those without professional experience.

Moved by Dr. McMaster, of Stratford, seconded by Dr. Greenwood, that we adjourn until one o'clock; carried.

The afternoon session of the meeting opened at one o'clock sharp, and most of the time was taken up in reading papers.

Dr. C. Kirkton read a paper on "Parturient Apoplexy, its Causes, Symptoms, and Treatment." This paper was the subject of much discussion. Dr. Gibbs, of St. Mary's, also referred to parturient apoplexy, and stated that he had the opportunity of seeing it three times in the same animal, and was always successful in his treatment. Dr. Black, of Clinton, read a paper on "Septic Metritis in a Young Heifer," and related its causes, symptoms, treatment, etc. Dr. Gibbs, of St. Mary's, read a paper on "Swelled Legs" of the horse, such as dropsical and inflammatory swellings.

The active participants of the meeting were as follows: Drs. Hodings, Clark, McMaster, Steele, Caw, Manser, Greenwood, Gibbs, Burger, Eckert, and Wagner.

Moved by Dr. Burges that we adjourn; seconded; carried.

ONTARIO VETERINARY MEDICAL COLLEGE SOCIETY.

THE following is a list of the papers read during the past month at the meetings of the Society. Many of the essays have shown thorough work

on the subjects discussed, and the communications have brought forward several rare cases for discussion, thus giving the students the advantage of hearing from a very wide field of practice :

Essays. J. C. Palmer, Osteoporosis; J. W. Rutledge, Diagnosis of Disease; G. T. Elliott, Torsion of Uterus; J. P. Stranghan, Cryptorchids; J. E. Sexton, Fistulous Withers; A. J. Cromwell, Dehorning; A. Jordan, Quittor; J. L. Devereau, Polyuria; A. Sorenson, Dermatitis Gangrenosa; R. B. Coult, Future of Veterinary Medicine; G. T. Irons, Administration of Medicine; W. J. Ackerman, Choking; F. J. Neiman, Congestion of Lungs; Wm. Cunningham, Loco-Poisoning; D. H. McKay, Sunstroke; J. D. Bell, Tuberculosis; E. B. Shaw, Texas Fever; L. T. Dunn, Fistula; J. T. Shannon, Glanders; D. McKenzie, Symptomatic Anthrax; W. M. Wilson, The Use of Leisure; H. R. Clark, Castration; E. C. Etwes, Texas Fever.

Communications. W. J. Ackerman, Azoturia; W. M. Wilson, Impaction of Rumen; P. Le C. Gauntt, Purpura Hemorrhagica; J. A. McDonald, Dorsal Injury; J. G. Cruikshank, Amputation of Penis; H. P. Reed, Azoturia; E. H. Lawley, Acute Indigestion; J. E. Sexton, Fracture of Os Suffraginia; A. J. Cromwell, Meningitis; W. H. Cory, Actinomyces; J. L. Short, Parturient Paralysis; R. B. Coult, Injury in Region of Forearm; L. Bailey, Azoturia; W. G. Huyett, Pica in the Ox; J. T. Shannon, Parturient Apoplexy; W. Cunningham, Spasmodic Colic; G. K. Cranston, Purpura Hemorrhagica; A. D. McLachlan, Rumenotomy; A. C. Walker, Cæsarean Section; D. Allen, Hæmoglobinuria; G. T. Irons, Caries of Incisors.

C. W. FISHER,
Secretary.

TORONTO, ONTARIO, January 13, 1898.

CHICAGO VETERINARY SOCIETY.

THE regular meeting was held on December 9th at the Sherman House. The following members responded to the roll-call: Dr. R. G. Walker, President; Dr. Jas. Henderson, Secretary; Dr. G. C. McEvers, Treasurer; Drs. A. C. Worms, J. F. Ryan, R. Gysil, L. Campbell, P. Quitman, E. L. Quitman, J. L. Siegroesser, Jos. Hughes, J. Robertson, B. A. Pierce, O. E. Dyson, J. J. McGrath, C. G. Nelson, F. J. Leith, H. H. Hawley, J. B. Clancy, A. O. Caspar, and Frank Allen.

The Secretary read a letter received by him from the Civil Service Board of Commissioners, reiterating their promise to hold an examination at which the veterinarians practising in the city may compete, with a view to selecting a veterinarian to attend the police horses of the city. They, however, evaded stating a definite date at which it would be held. After some discussion the following motion was made by Dr. E. L. Quitman, and seconded by Dr. McGrath:

That the Secretary be instructed to write to the Civil Service Board of Commissioners, asking them to appoint a time at which they would meet the Legislative Committee with a view to obtaining the board's decision regarding the date of the promised examination for police veterinarian. The motion was carried.

Dr. Hughes, chairman of the special committee appointed at our last meeting to draft a guide which would aid us in distinguishing a sound from an unsound or "serviceably sound" horse, when under professional

examination, made the following report: The committee found that this work exceeded in volume the time at their disposal to accomplish it. They, however, made a list of 140 blemishes, defects, and diseases which are often met with at the auction mart, and suggested that these matters be discussed and passed upon by the entire Society at our regular meetings. The following motion was made by Dr. Gysil on the subject: That members be appointed at each meeting to lead the discussion on one or more of the abnormal conditions enumerated upon the list, and that a stenographer be employed to report these discussions, with a view to their publication in the veterinary magazines after being edited by the Committee on Literature and Publication. The motion was seconded by Dr. Worms, and carried by the meeting.

The question was again brought up as to what course the Society should take regarding those of its members who still retained their commissions as Assistant State Veterinarians to the present empirical chief. After a lengthy discussion, a motion to postpone all action in the matter until next meeting was carried.

After further business of a routine nature, the meeting was adjourned.

The regular meeting of the Society was held at the Sherman House, on the evening of January 13, 1898, and the following members were present: President, Dr. R. G. Walker; Secretary, Dr. James Henderson, and Drs. R. Gysil, L. Campbell, P. Quitman, E. L. Quitman, Jos. Hughes, L. A. Merillat, J. Robertson, B. A. Pierce, A. H. Baker, C. A. White, O. E. Dyson, C. G. Nelson, F. J. Leith, C. E. Sayre, A. E. Rishel, J. B. Clancy, A. M. Caspar, D. Kennath, Frank Allen, O. R. Dubia, and W. E. McGrath.

The minutes of last meeting were approved as read.

The Secretary reported a letter sent by him, as instructed at the last meeting, to the Civil Service Board of Commissioners, asking them to appoint a time of meeting with the Legislative Committee. A reply from the secretary of that board was also read, granting our request.

Report of Legislative Committee: Dr. Hughes, as chairman, gave an account of the meeting above arranged for. The board averred that it had many examinations on hand in which large numbers of men were involved. That in the examination for the purpose of selecting a veterinarian to attend police horses only one position was to be filled, and on that account it would be postponed in favor of the examinations at each of which numerous positions were to be disposed of. The board stated, however, that the examination in which we were interested would be held before its term of office expired; that is, before six months; but further that it might be held any time after two weeks, the date depending upon the manner in which they progressed with the preferred examinations. The board also stated that the examination would, if possible, be conducted by expert veterinarians outside of the city, as it would be unfair to have any member of our Society examining both his fellow-members and other practising veterinarians outside of the Society at the same time. This last arrangement was cheerfully accepted by the committee.

Unfinished business: At our meeting on December 9th, a motion was put to the meeting, and carried, that all action in expelling those of our members who retained their commissions as Assistant State Veterinarians to the present empirical chief should be postponed until this meeting. After con-

siderable discussion, the following motion, made by Dr. Campbell, seconded by Secretary, was carried : That a vote by ballot be taken to decide whether these gentlemen be retained as members of the Society or not. Twenty-one ballots were cast—ten for expulsion and eleven for retention.

Regular programme: Dr. Gysil read a paper on the "Operative Treatment of Quittor."

The Society then entered upon the work of drafting "a guide which would aid us in distinguishing a sound from an unsound or a 'serviceably sound' horse when under professional examination." The following are our reporter's notes upon this effort :

Dr. Robertson : I do not see how a horse with diseased or absent molars could be strictly sound, but I have been lax and have not examined many horses' molars. Cribbing is a bad habit, and may lead to unsoundness, and a cribber should be rejected. Wind-sucking is also a cause for rejection.

Misrepresentation of age is a question for the law to decide. We are not supposed to take the dealer's word for the horse's age. Side-pulling is a habit. Wind-sucking I would consider an unsoundness, and cribbing a habit, from the simple fact that I believe it can be traced to disordered digestion.

Wind-sucking is a very serious question, because it is invariably associated with indigestion. Fifty per cent. of cribbers are wind-suckers, and wind-sucking is unsoundness.

It has always been a question in my mind as to whether a veterinary examiner of a horse for soundness should deviate at all from strictly or strict soundness. If we do not deviate from the point of soundness we pass very few horses, and interfere with the horse trade. If I found a diseased condition that would in any way reduce the value I would mention it. Absent molars is one of these cases. I would pass a horse with such a condition as sound if the cavity was closed with cicatricial tissue, unless pinned down to a point of strict soundness.

A horse with absent molars I would pass. My experience bears me out in this. I believe a veterinary examiner should be more or less liberal in his report. He should avoid as much as possible interfering with the horse business or trade. Protect your client, and when it is for his interest reject. Your opinion must be based upon whether the horse's utility is interfered with or not.

Dr. Merillat : I will include diseased and absent molars as one, and speak of them together. On account of the importance of mastication I would consider it a serious lesion. There is no animal in the order of mammalia or herbivora that needs such an extensive mechanism of mastication as does the horse. His food is dry and hard in texture, and must be thoroughly masticated for his gastric digestion, and such diseased molars must lead to serious disease sooner or later, and again disease of one molar is an indication that others are not too sound. You will find by observation that an animal with a diseased molar, if it occurs during the earlier years of his life, is quite sure to have an early disturbance of his whole dental mechanism, as I believe that diseased teeth are due to faulty development.

Side-pulling is a bane to the man practising dentistry. It is a simple habit to the laymen, and one that the laity believe the veterinarian should easily remedy, whether it is caused by abrasions of the buccal membrane or from sharp teeth of any kind. In the latter instance dentists can be of

some avail. Another great cause of side-pulling in my observation is lameness or soreness in one side of the body. Navicular disease is another cause. You will find this chiefly in the animal that does not pull much. He is the worst side-puller, and does not take the line, and keeps going from one side of the street to the other. I firmly believe that Dr. Quitman's central cause can be one of the etiological factors in this condition, viz., lesions of the brain, but I do not believe that softening could be put under that head, but chronic hydrocephalus. Ocular disease is another great cause. An animal that has not good and perfect sight might have it from central origin. In these cases it is foolish to try and cure the side-puller by removing and cutting the molar.

Dr. Hughes: Diseased teeth in the upper jaw may be a cause of ulceration—a factor which might cause abscess in the maxillary sinus and nasal gleet. I confess I rarely look in the mouth for diseased teeth; at the same time that does not avert the fact that an absent molar means an unsound horse, and I do not think a man is justified in passing a horse with an absent molar. If you extract a diseased tooth that means that the horse is laid up for several weeks.

I hold that cribbing, as a rule, is associated with wind-sucking. Now comes up the question as to what is wind-sucking. Is it a habit by which the animal grasps a mouthful of air and lets it pass down his oesophagus? No; we do not know anything about it.

Misrepresentation of age is a question to be decided by law.

As to the cause of side-pulling and definition, I must confess I have learned a great deal about it to-night. Dr. Wyman says it is a diseased condition of the brain, and the question of dummy came up, also cerebritis and softening of the brain. Dr. Quitman says a dummy means a softening of the brain. Dr. Wyman has taken the position that softening results from a traumatism, and that with the traumatism there must be infection, irritation, and chronic indigestion unless got by irritation. Cribbing, if only a habit, leads to wind-sucking, and wind-sucking leads to constant bloating and irritation of the digestive apparatus. My opinion is that cribbing is an unsoundness, and wind-sucking still more so.

Misrepresentation of age: This is a little hard to define as an unsoundness. If the animal is perfectly sound that could not be called an unsoundness. The animal could be returned as being unfit for use if purchased. Forcing the age by extracting the milk-teeth before they are ready to be shed, is easy to tell, and the rejection of the animal should depend upon his acceptability to the buyer.

Side-pulling: This takes in its scope a hard-mouthed animal. Side-pulling is a very disagreeable and dangerous habit, and I claim an animal so affected is unsound. Side-pulling may be due to a habit or from sharp or diseased teeth. It is sometimes a result of nasal gleet and brain-pressure. Sometimes there is no diseased condition at all, and he may become a side-puller by having been driven double, and then single. It is a very dangerous habit, especially in crowded cities, as the animal may be the cause of bringing his owner into court. Hard-mouth comes out in driving. It is usually more or less easy to tell by the cicatrized condition of the mouth.

Dr. Dyson: In my experience it is a habit, and due in a great many instances to over-checking or faulty driving. A good remedy for its cure is a change of driver, liberal use of the whip, and to abandon the high

checking of the horse. I think in the majority of cases it is merely a habit.

Dr. A. H. Baker: I do not consider a horse with an absent molar and otherwise sound, as unsound. The mere fact that the corresponding molar extending down into this cavity and into the tissues below as being sufficient excuse for rejection of the animal are insufficient. There is no horse that will not require attention sooner or later. They are all composed of flesh and blood, and put into service will all do wrong. Where there is an absent molar the opposing molar needs excising. A horse with a diseased molar is unsound.

Cribbing *per se* is not unsoundness. It is a habit on which the common law will allow a man to return a horse. It is a habit that certainly is very objectionable, and will lead to defects and disorders which we as examiners have nothing to do with.

Misrepresentation of age is not unsoundness. It is a fraud which the common law would punish. It does not interfere with health. The horse is just as healthy as though the age were not misrepresented. A veterinarian always gives his opinion regardless of misrepresentation. If a horse is nine and is represented as six years old, that should not influence the veterinarian, who should give his opinion regardless of whether the seller is telling a lie or not. Misrepresentation is fraud, pure and simple, and not unsoundness.

Side-pulling due to no pathological lesion is not unsoundness. In the majority of cases it is due to sharp teeth. A dentist will correct it. If the horse is lame and is a side-puller it is unsound.

Dr. Wyman: The doctor said that softening in the brain might lead to this trouble. Softening of the brain is either of traumatic or infectious origin, and that it does take place is a fact. We do find it especially as a complication of those troubles where we have a metastasis that may lead to abscess-formation.

I was so forcibly struck with the statement made of softening of the brain and cerebritis, that I thought at some time or other during my life at college that I might have been negligent in gathering the facts, and for that reason only did I beg your permission to speak on the question which before so suddenly came to an end. Hydrocephalus is a condition where we have the lateral ventricles, the third, and never the fourth, filled with serum. This serum is the result of either a transudation or exudation from the choroid plexuses. It may follow an acute lepto-meningitis or an œdema pure and simple. The condition which we usually find on post-mortem is a serum amounting from 20 to 40 grammes—40 being the utmost given by Degraf. Lepto-meningitis is only too often the result of an infection and softening of the brain; never takes place at all, excepting traumatism is present. The point I wish to make, I put it of traumatic origin, with subsequent infection.

Dr. Quitman: In making an examination for soundness, always remember that a horse is a living monument to its examiner, and for that reason it is important to be extremely careful. It is better to be sure than sorry.

Diseased or absent molars: A diseased molar is unquestionably an unsoundness, because (1) that molar will sooner or later cause trouble in mastication of food, or (2) fistula or necrosis of the lower jaw or nasal gleet of

the upper. I unquestionably would reject a horse having a decaying or absent molar.

Absent Molar: We must look at this from two sides. If the horse is being sold for a fair price, and being otherwise sound, I would not reject him. Some say it is pretty harsh, yet we know the cavity will lead to several different results. The opposite tooth will sooner or later grow into that cavity, and if not cut off will bruise the opposing jaw. The animal may be serviceably sound.

Cribbing: This I will take up along with wind-sucking. Wind-sucking usually follows cribbing, and when he gets more accomplished he becomes a wind-sucker. A cribber must have some object on which to press his teeth. A cribber may become a wind-sucker in a very short time, and I have seen a horse graduate in one case in about four days. It is certainly a cause to reject a horse. Its simplest fault is ruining the general appearance of the teeth. It is an unsoundness, or it leads to unsoundness.

I mentioned it was due to an injury, and believe the majority of so-called dummy cases could be traced to traumatic injury. It is a common occurrence to see a horse hit over the head with a broomstick or anything of that kind, and the condition that we find in a dummy very closely resembles the symptoms that follow, and, while I do not doubt the condition that any pressure on the brain will cause these conditions, I claim that softening of the brain can be a cause.

In hydrocephalus due to meningitis some of the primary symptoms are those of either motor or sensory irritation, locomotor ataxia or elevation of the legs; on the other hand, the slightest blood-clot may cause a paresis. Now, if we have this effusion into these ventricles large enough to cause this idiotic condition, how is it we do not have paresis? Is it chronic meningitis that causes that abnormal condition? If there is chronic meningitis, what causes these periods of normality? In early stages of cerebral softening they can be brought about by an extra amount of blood being carried to the parts, and dummies can be caused by considerable effusion into the ventricles of the brain and into the cervical portion of the cord and into the subarachnoidean space.

JAMES HENDERSON,
Secretary.

SCHUYLKILL VALLEY VETERINARY MEDICAL ASSOCIATION.

THE Association held its regular quarterly meeting at the Hotel Woll, Pottsville, December 15, 1897, President Dr. Otto Noack in the chair. There were present Drs. Noack, Sallade, McCarthy, Yingst, Bieber, and Longacre. Minutes of previous meeting were read and approved. Letter of regret of his inability to be present from State Veterinarian, Dr. Leonard Pearson, was read, also rules of State Sanitary Board, and copies of act of Legislature regulating the bringing into this State of cattle for breeding purposes, sent by him, were distributed, and received the approval of the society.

A committee, consisting of Drs. Noack, Sallade, and Longacre, was appointed to draw a set of resolutions favoring meat- and milk-inspection by municipalities, to receive the indorsement of State Secretary Lee, and to be presented to city and town councils throughout the State.

Papers were read by Dr. Noack on "Milk- and Meat-Inspection as Ex-

ecuted by Municipalities." One by Dr. S. G. Burkholder, U. S. Service at Chicago, and a member of this society, on the subject of "Meat-Inspection as Executed by the United States," and one by Dr. Sallade on "Sanitary Science."

At the next meeting, to be held at Shenandoah, Pa., Dr. Sallade will continue his subject. Dr. McCarthy writes on "Lymphangitis," and Dr. Longacre will also produce a paper on some routine subject not yet selected.

DR. J. W. SALLADE,
Cor. Secretary.

MASSACHUSETTS VETERINARY ASSOCIATION.

THE regular monthly meeting was held November 24, 1897, at 19 Boylston Place, Boston, President Winchester in the chair. Members present: Drs. Beckett, Burr, Cronon, Frothingham, Hamilton, Labaw, Lee, Lewis, Paige, McLaughlin, Parker, Pierce, Rogers, Sheldon, Soule, Stickney, Winchester, and Winslow.

Dr. J. B. Paige, of the Massachusetts Agricultural College, Amherst, Mass., read a paper on "Veterinary Education in European Schools" that he visited.

The Association had as guests Mr. Paige, a brother of the lecturer, and Drs. J. S. Cutting, of Medford, and Charles H. Higgins, of Dover.

HENRY S. LEWIS,
Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE regular monthly meeting of the Association was called to order Wednesday, January 5, 1898, at 8 P.M., with the President, Dr. Huidekoper, in the chair.

After roll-call, the minutes of the previous meeting were read and approved.

The Secretary then read the list of members appointed on the committees by the President, for the current year, as follows:

Board of Censors: H. D. Gill, chairman; J. S. Cattnach, Roscoe R. Bell, J. J. Foy, R. S. MacKellar.

Judiciary Committee: A. O'Shea, chairman; H. D. Gill, J. E. Ryder, C. C. Cattnach, Herbert Neher.

Reports of special committees: Dr. Gill, chairman of committee appointed by the chair to search the register, reported that Dr. Grenside was properly registered, and that the report in reference to Dr. Hingston as given at last meeting was correct. Moved and seconded, that the report be accepted: carried. The chair next reported in reference to the *Blue-book* as follows: It is practically all in type, except the table of contents, which will appear in the next ten days. President Huidekoper had advanced considerable money, and more would be required to be paid in the next ten days, so the following proposition was made by him to the Association: That if the Association so desired he would advance the amount required, when due, and that he would thereby assume the entire financial part of the *Blue-book*.

After some discussion it was moved and seconded that President Huidekoper have the financial control of the *Blue-book*; carried.

Reports of cases: Dr. Bell reported a case of fistula at the inferior border of the buccinator muscle. Free discussion followed. Dr. Gill spoke of his experience with azoturia cases after the Christmas holidays, having noted that all of his cases came from badly ventilated stables.

Moved by Dr. Hanson, that a committee of five be appointed to see what could be done to encourage veterinarians to attend and join the Veterinary Medical Association of New York County, and report at next meeting; seconded; carried.

Moved and seconded that the Executive Committee take into consideration the entertaining of the New York State Veterinary Medical Association; carried.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

VETERINARY MEDICAL SOCIETY OF THE UNIVERSITY OF PENNSYLVANIA.

THE meetings held during the month of January were of special interest, as the subjects for debate and the papers to be read were well selected, and all the members seemed to be working with a common effort to bring every part up to the standard. The money taken in by the Treasurer during the last meeting amounted to eight dollars and fifty cents. Mr. Stehle's name was proposed and duly elected a member of the Society.

One of the most important changes in the Society was the election of new officers, which resulted as follows: Honorary President, Prof. J. W. Adams. He was unanimously elected to succeed Prof. R. S. Huidekoper. President, J. E. Spindler; Vice-President, G. Chesley; Treasurer, S. Blount; Librarian, E. Newcomer; Executive Committee, S. McClure, '98; H. Hoopes, '99; J. P. Miller, '99; E. Cornman, 1900.

Some of the interesting and instructive papers read to the Society were: "Etiology of Epizootic Abortion," by Prof. S. J. J. Harger. He traced the full course of the disease, and the members present were greatly benefited by the paper.

Mr. E. Newcomer presented the Society with an excellent paper; he traced the horse from its first knowledge in history until the present time; he showed some of the important changes that have taken place in the equine family, the most important of which was the great development of speed. The paper was highly appreciated by the members present.

Mr. Hoopes read a very interesting article on "What Parts have the Arabian, Turkish and Barbary Horses Played in the Foundation of the Racing Breed of Horses." Mr. Hoopes thought that subjects of this class were very important for the veterinary student to be well versed upon, as in after life he will constantly come across instances in which he will be called upon to discuss this question at some institute or Grangers' meeting, where such a subject, if well delivered, would receive the highest appreciation.

The subjects for debate during this month's meetings were as follows:

Resolved, That veterinarians should be active members of humane societies. Affirmative—Mr. Megary, Mr. Taylor, Mr. White. Negative—Mr. Murphy, Mr. Miller, Mr. Beaver.

The judges, Messrs. Kirby, Newcomer, and Hughes, decided in favor of the negative.

Resolved, That the United States Government should give the veterinarian in the United States Army the rank and pay of second lieutenant.

Affirmative—Mr. Spaethe, Mr. Jacobs, Mr. Nolan. Negative—Mr. Murphy, Mr. Townsend, Mr. Reardon.

Mr. Spindler made a report in behalf of the supper committee, it having liquidated the expenses and obtained a receipt in full. It was moved and seconded to offer a vote of thanks to the committee, which was very heartily adopted.

It was also moved and seconded to offer a vote of thanks to the outgoing officers; carried.

The Society adjourned at 10.15 P.M.

M. JACOB,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE January meeting was called to order by President Leonard Pearson, Tuesday evening, January 11th, with the following present: Drs. J. Cheston Morris, S. J. J. Harger, George V. Fallows, J. D. Houldsworth, W. Horace Hoskins, Charles Lintz, Leonard Pearson, James B. Rayner, W. L. Rhoads, Thomas B. Rayner, H. A. Christmann, C. J. Marshall, A. N. Lushington; also Messrs. Repp, Spindler, Cunningham, Kirby, and Jones, of the Veterinary Department of the University of Pennsylvania.

After the routine business, Drs. Rhoads and Hoskins offered a resolution making the payment of \$5.00 membership cover the dues till the succeeding annual meeting; to be acted on at February meeting.

Dr. S. J. J. Harger now read a very entertaining and instructive paper on the "Use of Arecoline in Colic." Its action is similar to that of eserine and pilocarpine combined; it is rapidly eliminated, and successive hourly doses can be given. It is contraindicated in horses with respiratory trouble or with functional alterations of heart, also in pregnant females. Common horses are more susceptible than well-bred ones. Cattle are very susceptible. Dr. C. J. Marshall said he had used the drug in a number of cases, and found it to act the same in 2-grain doses as 2 grains of eserine and 3 grains of pilocarpine would. Dr. Lintz said in impaction colic you always had a frictional sound in the movements of the joints.

The delivery of milk in glass jars was now discussed. The general consensus of opinion being that if bottled in good condition at the dairy, this was undoubtedly the best method.

The President appointed Drs. C. J. Marshall and W. H. Hoskins as a committee to answer an article in a paper which condemns this method of serving.

Dr. Hoskins asked what could be done to ascertain the truth of statement made by milkmen who said in their display-card, "dairy under veterinary, sanitary, and chemical inspection."

The President appointed Drs. C. J. Marshall, J. D. Houldsworth, and Charles Lintz to take this matter in charge.

Meeting adjourned till February 8, 1898.

DR. W. L. RHOADS,
Secretary.

U. S. V. M. A.

CHAIRMAN BUTLER, of the Executive Committee, reports the decision of that body in favor of Omaha for the place of meeting in September, 1898.

President Salmon announces the following additional appointments for the year's work. The Army Legislative Committee has been increased to five instead of three, as in former years. He has continued Dr. J. P. Turner at the head of the Army Legislative Committee :

Committee on Army Legislation: Dr. J. P. Turner, Fort Meyer, Va., Chairman; Dr. M. Stalker, Ames, Ia.; Dr. A. G. Vogt, Newark, N. J.; Dr. Austin Peters, Boston, Mass.; Dr. E. P. Niles, Blacksburg, Va.

Resident State Secretaries.

Alabama	C. A. Cary, Auburn.
Arizona	J. C. Norton, Phoenix.
Arkansas	R. R. Dinwiddie, Fayetteville.
California	Fred. C. Pierce, 1724 Webster St., Oakland.
Colorado	D. P. Frame, 11 South Wasatch Ave., Colorado Springs.
Connecticut	R. P. Lyman, 328 Asylum St., Hartford.
Delaware	H. P. Eves, 507 W. Ninth St., Wilmington.
District of Columbia	A. M. Farrington, Department of Agriculture, Washington.
Georgia	George P. Blackman, Rome.
Illinois	F. S. Schoenleber, Morris.
Indiana	J. R. Mitchell, Evansville.
Iowa	T. A. Brown, Chariton.
Kansas	R. H. Harrison, Atchison.
Kentucky	F. S. Eisenman, 222 East Main St., Louisville.
Louisiana	W. H. Dalrymple, Baton Rouge.
Maine	William S. Lord, U. S. Hotel, Portland.
Maryland	Wm. Dougherty, 1035 Cathedral St., Baltimore.
Massachusetts	J. F. Winchester, Lawrence.
Michigan	S. Brenton, 83 Fifth St., Detroit.
Minnesota	M. H. Reynolds, St. Anthony Park.
Mississippi	J. C. Roberts, Agricultural College.
Missouri	Charles Ellis, 3230 Locust St., St. Louis.
Montana	M. E. Knowles, Butte.
Nebraska	W. D. Hammond, Wayne.
New Hampshire	Lemuel Pope, Jr., Portsmouth.
New Jersey	J. P. Lowe, Bloomfield Ave., Passaic.
New York	William Henry Kelly, 195 Western Ave., Albany.
North Carolina	A. S. Wheeler, Biltmore.
North Dakota	T. D. Hinebaugh, Fargo.
Ohio	T. Bent Cotton, Mount Vernon.
Pennsylvania	W. H. Ridge, Trevoise.
Rhode Island	Walter L. Burt, 26 Tabor Avenue, Providence.
South Carolina	Benjamin McInnes, Charleston.
South Dakota	M. J. Treacy, Fort Meade.
Tennessee	Joseph Plaskett, 529 Broad St., Nashville.
Texas	M. Francis, College Station.

Virginia	E. P. Niles, Blacksburg.
Washington	S. B. Nelson, Pullman.
West Virginia	L. N. Reefer, 1406 Chapline St., Wheeling.

NINTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

VETERINARY HYGIENE—CIVIL AND MILITARY.

Papers: 1. Means for the prevention of the spread of tuberculosis in domestic animals and the transmission of the same to the human species.

2. Necessity and advisability of sanitary regulations for domestic animals, on the point of view of their diseases, and of the consumption of their flesh and alimentary substances.

3. Conditions which ought to be required in beasts destined to the obtention of serums and vaccines, and intervention which is to be assigned to the veterinary surgeon.

4. Hygienic and prophylactic measures for the prevention of glanders in military live-stock.

5. Veterinary, hygienic, and sanitary prescriptions in cavalry barracks.

6. Preventive antitetanic-serum in military live-stock, with the advantages derived from its employment.

SOCIETY NEWS.

THE next meeting of the Missouri Valley Veterinary Medical Association will be held in Kansas City, Wednesday, February 9th, and the Secretary announces a strong programme.

THE annual meeting of the Wisconsin Society of Veterinary Graduates will be held at the Assembly Chambers, Madison, on Friday, February 25th, at 1.30 P.M. The programme is a very interesting one.

AT their fifteenth annual meeting the Ohio State Veterinary Medical Association elected the following officers: President, Dr. Walter Shaw, Dayton; First Vice-President, Dr. W. J. Torrance, Cleveland; Second Vice-President, Dr. L. W. Carl, Columbus; Third Vice-President, Dr. S. D. Meyers, Wilmington; Secretary, Dr. W. H. Gribble, Washington Court House; Treasurer, T. B. Hillock, Columbus.

THE Executive Committee of the Alumni Association of the American Veterinary College will meet in the College building on February 10th, at 3 P.M., for the purpose of transacting such business as is connected with the graduation of the class of '98, by direction of Chairman Wm. Herbert Lowe, of Paterson, N. J.

THE annual meeting of the Keystone State organization will be held in Philadelphia on March 8 and 9, 1898. The great interest this meeting always awakens will be maintained this year by an unexceptionable programme of great merit. The most important committee reports will be made at this meeting, and an unusual interest all over the State is being centred in the coming gathering.

THE New York County Veterinary Medical Association will be entertained by Dr. Herbert Neher at their February meeting by an illustrated

(microscopically) discourse on developing bone, showing ossification zones; sections of hard bones, exhibiting the lacunæ, canaliculi, cartilages, etc.; sections of fetal humerus of a cat, showing bone development; section of decalcified bone, showing minute anatomy of the same.

DR. OSCAR BUSENER, graduate of the American Veterinary College, class of '91, died recently at his home in Jeffersonville, New York, from tuberculosis.

PERSONALS.

Dr. N. Rectenwald, of Pittsburg, has just added another beacon of joy in his family, the birth of a daughter, the fourteenth of his little ones, twelve of whom are living.

Dr. Leonard Pearson spent several days in January among the Farmers' Institutes.

Dr. A. J. Sheldon enters practice with Messrs. Lyman and Osgood, under the firm name of Lyman, Osgood & Sheldon, at 50 Village Street, Boston, Mass.

Drs. James A. and David Waugh, of Pittsburg, will give instructions to a number of horseshoers in that city this winter. The course will consist of a series of lectures and anatomical dissections and demonstrations.

Dr. Wm. H. Nice, of Germantown, Philadelphia, fills an appointed office in Union Lodge, F. and A. M., one of the oldest and richest lodges in the jurisdiction of Pennsylvania.

Dr. James A. Marshall has been elected Vice-President of the Philadelphia Turf Club.

Dr. George W. De Swan, of Roxborough, holds the position of veterinarian to the Philadelphia Retail Grocers' Association.

Veterinarian D. Cumming, Inspector of the Bureau of Animal Industry at Port Huron, Michigan, was on the sick-list in January.

Dr. J. S. Alexander, of Evanston, Illinois, was a contributor to the Christmas number of the *Breeders' Gazette*.

Drs. Adams and Harger will again lecture to the horseshoers of Philadelphia during the coming months.

Veterinarian J. Aschmidt was appointed one of the Board of Examiners of horseshoers in Minnesota by the Governor.

Dr. W. L. Rhoads, of Lansdowne, Pa., met with an extremely narrow escape from injuries by a trolley-car. A thorough shaking up, some bruises, the destruction of his carriage, and injuries of a severe character to his horse completed the wreckage.

Dr. Robert Ward, of Baltimore, was a contributor to the holiday number of the *Horseshoers' Journal*.

Dr. Charles A. Gleason, of Rye, N. Y., has been elected President of No. 94 of the Master Horseshoers' Union.

Veterinary Surgeon John J. Fox, of New York City, has retired from the veterinary profession and adopted the vocation of undertaker and embalmer. Dr. John Dodd succeeds to his practice.

Dr. Emil Knight, of Rochester, N. Y., met with the sudden and sad loss of his mother, in January, from cerebral hemorrhage.

Dr. Patrick H. Mullooney, of Boston, has accepted an appointment in the Bureau of Animal Industry and has been assigned to duty in the quarantine service west of the Mississippi River.

Dr. Leslie J. Allen has been transferred from the meat-inspection service at Kansas City to the western quarantine division, and will be stationed at El Paso, Texas, from which post Dr. A. B. Morse was recently transferred to Clinton, Iowa, to take charge of the abattoir inspection at that point.

Dr. J. I. Gibson, of Dennison, has been reappointed State Veterinarian of Iowa by Governor Shaw.

Dr. C. F. Bell, of Kokomo, is a breeder of bloodhounds, and has recently been elected President of the American Bloodhound Association.

Dr. U. G. Houck, of the Bureau of Animal Industry, has been transferred at Chicago from the inspection service to microscopical work in the laboratory at that point.

Dr. N. A. Cohen has been elected Secretary-Treasurer of the Wildwood, N. J., fire company.

Dr. H. D. Fenimore, of Knoxville, Tenn., was a visitor during the holidays to the "City of Brotherly Love," including the JOURNAL office among his calls.

Dr. J. W. Dunham, formerly of Faribault, Minn., is now located at Lakota, North Dakota.

Veterinarian Wm. J. Waugh is now located with his company at Fort Ethan Allen, Essex Junction, Vt.

Dr. W. L. Labaw, formerly assistant of Lyman & Osgood, of Boston, has entered upon private practice in the city of Boston.

Dr. Leonard Pearson was a visitor to Boston on New Year's Day, spending some hours in clinical instruction at the Harvard Veterinary Department.

Dr. E. C. Muir, of the Veterinary Department of the University of Pennsylvania, is conducting a series of experiments in equine cathartics.

State Veterinarian Leonard Pearson was a visitor to Washington, D. C., in January, in the interests of the regulations of the Pennsylvania State Live-stock Sanitary Board, regarding cattle-traffic through the Keystone State.

Dr. A. J. Sheldon is now connected with the clinical staff of instructors of the Veterinary Department of Harvard University.

Prof. S. J. J. Harger, addressed the Students' Society in January at the Veterinary Department of the University of Pennsylvania, on "Infectious Abortion of Cattle."

Dr. E. G. Gilbert, of Pottstown, was a visitor to Philadelphia in January, on a mission relative to the regulations of the Pennsylvania State Live-stock Sanitary Board.

Dr. Leonard Pearson was in attendance upon the annual meeting of the State Board of Agriculture of Pennsylvania, at Harrisburg, in January, and also at the subsequent reception given this body by Governor Hastings.

Dr. L. A. Merillat, of the McKillip Veterinary College, was called as an expert in the second trial of A. L. Luetgert for murder, testifying that the disputed fragment of bone on which so much rests was a portion of the os navicula of the ox. This evidence was in conflict with the State's witnesses, who claimed it as a part of the head of a human rib.

Dr. H. A. Christmann, of Philadelphia, has received an appointment under the Bureau of Animal Industry, and has been assigned to duty at Milwaukee, Wis.

Dr. J. C. McNeil, of Pitsburg, is giving much attention to the examination of live-stock entering Pennsylvania to replenish our dairies under the regulations regarding tuberculosis.

Dr. Alex. Glass, of Philadelphia, is forming a reading-class in French.

Dr. Herbert Neher, of New York City, was on the sick-list and absent from duty the latter part of the old year.

Dr. Wm. Herbert Lowe, of Paterson, N. J., has placed upon the streets of that city a commodious ambulance, and in his noted generosity wants it to be known that it will be at the command of all his colleagues at any hour for the prompt conveyance of sick or disabled animals to any point.

INTERESTING CORRESPONDENCE.

“Where ignorance is bliss, it is folly to be wise.”

R———, PA., Dec. 7th, 1897.

DR. V——, V.S.:

Dear Sir Will you Please Give Me your Remedy For Lung Feaver as I Have Bin told you are verry Successful In The Treatment of Lung Feaver In Horses I would Be verry Thankfull If you Would Send Me your Remedy as I Have Some Cases That Die For Me & Especialy Where Their is a Tendency To Dropsey I Will Give you My Remedy For (Partuerenty Appoplexia or Milk Feaver) as Some Call it) as I Loose Verry Few Cases.

R.—Tr. acconite
“ Belladonna | . alternally Evry 2 Hours 20 Drops.

& when The The Feaver Subsides Give The usual Dose of (ammonia balerian N.

Yours in

.F. C. B.

DR. G. C. B——, D.V.s.

Please Send as I am Many Miles From you & Cannot Do you Eny Hurt Mr. G.—— H—— told Me of your Successfull Treatment of Some western Horses of abraham C—— at Three Bridges N Y

G. C. B.

[EDITOR.—The above is an exact reproduction of a letter sent by one veterinarian to another, and should be a sufficient reply to those who still feel that there is no need of Boards of Veterinary Medical Examiners.]

NEW INVENTIONS.

A CURRYCOMB, with movable stripper-plates from teeth, held in place with a spring, and readily removable for cleansing.

A horseshoe with removable calks arranged in sockets with set-screws.

An elastic-tread horseshoe, rubber-cushioned in metallic plate, the rubber carrying a stiffening wire, and bolted in the framework.

A concavo-convex, grooved shoe with rubber-cushion in groove.

Elastic-rubber surface for backband of harness.

Combination currycomb and brush, the latter hinged to the comb, to enable it to be used at the same time as the comb.

A reversible animal yoke with a metallic nosepiece.

A nailless horseshoe of a plurality of parts pivotally connected, with insets and a detachable securing-clamp.

A veterinary écraseur, with a cutting and contusing hook-like end, terminating a rod passing through a tubular body-piece, with adjusting-screw at handle for operating.

A metal-armored foot-protector adjusted to pastern and coronet by straps.

An elastic horseshoe composed of rubber, with groove for metal plate, to afford means of attaching to the foot, and rolled for embedding in the rubber.

A pneumatic harness-saddle, pad to retain position when inflated.

A governor or chin-rest for horses, by a spring noseband connected with overdraw checks ; chin-strap rings fastened to lever, so that the pressure on the chin-strap and overdraw will be uniform.

An unpadded horse-collar-frame, with pads only on under surface, the frame fastened to saddle by a metal connection, thus keeping throat and neck free from contact.

A portable stall, the posts and partitions having enlargements on ends for adjusting in slots.

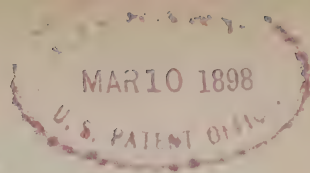
An underchecking device, comprising a wire collar, a check-bar, with snap connection, curved jaw rest-pad, nose-straps, and face-pad with snap-hook connection and strap for suspending face-pad from the headstall.

A device for stopping horses, composed of an open steel ring with handle connected with spring, the ring closing over the nose.

AN UNUSUAL OPPORTUNITY.

A practice for sale in a town of five thousand inhabitants and a good farming locality surrounding. A milk station and creamery located in the town ; a good dairy country. The only registered practitioner in or near the place. Will give good reasons for selling. Address

**X, Journal Office, 3452 Ludlow St.,
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THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES.

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MARCH, 1898.

No. 3.

A FURTHER CONTRIBUTION TO THE HYGIENE OF MILK.

BY DR. OTT,
SWITZERLAND.

Translated for "The Journal of Comparative Medicine" from the "Zeitschrift für Fleisch und Milch Hygiene," January, 1898.

IN connection with an investigation in reference to the bacteria found in the local market milk, some samples were also examined for tubercle bacilli, and since they were determined microscopically in one case, a special series of experiments was undertaken with the view of making a study of this question. It has been shown frequently that tubercle bacilli are contained in milk that comes not only from cattle with tuberculosis of the udder, but also from cattle that suffer with tuberculosis elsewhere and even in a slight degree. A number of investigators have also shown that tubercle bacilli may occur in mixed milk as it comes to the market.

On account of the great importance of this question, and the fact that a large percentage of cattle suffer with tuberculosis, it seemed that it would be useful to make a special examination of market milk for the presence of tubercle bacilli. The investigation naturally covers two points: First, as to whether tubercle bacilli were actually present in the local market milk, and this must be determined by a microscopic examination; second, it must be determined whether the tubercle bacilli are virulent, and for this purpose animal experiments are necessary. In order to make a reasonably accurate microscopic examination of milk for tubercle bacilli it is necessary to centrifugalize it so that bacteria suspended in the milk can be gathered and examined microscopically in what might be called a concentrated form. But simple centrifugalizing of the milk will not suffice for this purpose, because not a few of the bacteria are carried to the surface by the fat-globules, and remain

in the cream, and, therefore, do not appear in the sediment. Of the several methods that have been used to overcome this difficulty the author has used that recommended by Knut and Arnell to ascertain the presence of tubercle bacilli, who have employed a modification of the method of Röse-Gottlieb for determining the fat content.

The examination is carried out in the following manner: 25 c.c. of milk are placed in a mixing-cylinder that is pointed below and is provided there with a glass cock. To this, 2 c.c. of aqua ammonium are added. Then 100 c.c. of a mixture of equal parts of ether and petroleum-ether are added for the purpose of dissolving the fat, and the whole is thoroughly shaken. It is then allowed to stand until the watery and ethereal layers have completely separated. The watery ammoniacal solution of casein now contains all of the bacilli. This is drawn off by means of the glass cock and centrifugalized for fifteen minutes. In this way most of the bacteria are collected in the sediment. This method seems to furnish the simplest means of accomplishing this end. Samples of sediment are now fixed on cover-glasses in the usual way, stained with aniline-water-fuchsin, and treated further according to the method of Czajewskis. In this way forty-three samples of milk were examined for tubercle bacilli. The milk was ordinary market milk, part of which had been submitted for a chemical examination and part of it was bought from dealers for this special purpose. The result of the investigation was as follows:

In the forty-three samples tubercle bacilli were found five times in the sediment obtained as above—that is, about 11.6 per cent. The number of tubercle bacilli was small in four cases, an occasional one being found only after examining several fields, while in one case a great many tubercle bacilli were present in every field. In this way the presence of tubercle bacilli in milk was proven.

Whether the tubercle bacilli were still virulent could only be determined by experiments on animals. For this purpose samples were purchased again from dealers in whose milk tubercle bacilli had been found, and guinea-pigs were inoculated with this material. In each case the milk was centrifugalized and 5 c.c. of a mixture of sediment and cream were injected. Further, the samples of milk were again examined for tubercle bacilli, according to the above method. The results of the experiments on animals were as follows:

Sample of Milk No. 1. Microscopically few bacilli; 5 c.c. were injected into the peritoneal cavity of two guinea-pigs. In twenty-

two days one guinea-pig died, and the autopsy revealed a collection of light-yellow nodules on the peritoneum which, upon section, were found to be filled with a cheesy material. These were in the vicinity of the point of inoculation. On other portions of the parietal peritoneum were found small hard nodules. The omentum was contracted and studded with large and small grayish-white nodules. The folds of the intestine were grown to each other and to the abdominal walls. The spleen was enlarged and thickly studded with tubercles; lungs normal. Preparations made from the cheesy interior of the nodules of the peritoneum show a large number of tubercle bacilli.

The second animal was killed thirty days after injection, and autopsy revealed some small, hard, yellowish nodules around the point of inoculation. The spleen was enlarged and contained a few nodules the size of a pin-head. The retroperitoneal glands were swollen to the size of a pea. The liver, lungs, and kidneys were without macroscopic lesions. Preparations from the spleen and the nodules contained tubercle bacilli.

Sample of Milk No. 2. Microscopically no tubercle bacilli could be found at the second examination, although they were undoubtedly present at the previous examination. Both of the animals inoculated with this milk were killed in five weeks, and upon post-mortem examination were found to be free from tuberculosis.

Sample of Milk No. 3. About five tubercle bacilli were found in each field. Two guinea-pigs were injected intra-peritoneally, each with 5 c.c. of a mixture of sediment and cream. One was killed in twenty-eight days, and the other in thirty-five days after inoculation.

Autopsy: At the point of inoculation there was a large nodule almost entirely caseous. The peritoneum was thickly studded with nodules. Omentum was rolled up and lying in the greater curvature of the stomach, and contained *very large and small* nodules. The intestines adherent; the spleen enlarged, and upon cross-section was found to contain numerous caseous nodules. On the serous covering of the cæcum were two nodules the size of a pin-head. In the right kidney two large caverns connected with the pelvis of the kidney and contained numerous gray nodules. Lung tissue intact. In the diseased organs many tubercle bacilli were found.

Sample of Milk No. 4. Microscopically few bacilli. The animals were inoculated as before and killed in six weeks. By post-mortem examination one of them was found to contain nothing

abnormal; while in the other there were several nodules at the point of inoculation and an enlarged spleen with nodules containing tubercle bacilli.

Sample of Milk No. 5. Microscopically few bacilli. One animal died forty days after inoculation, and the other was killed on the same day. In both animals there were lesions of tuberculosis. In the one that was killed the alterations were less extensive.

Therefore, in ten guinea-pigs inoculated with milk in which tubercle bacilli had been discovered microscopically, seven became infected with tuberculosis, and furnished proof that the tubercle bacilli were virulent. In reference to the sample of milk No. 2, in which tubercle bacilli were found originally, none could be found immediately before inoculation, and no infection was produced in the animals affected with it. The disappearance of the tubercle bacilli can be accounted for by the assumption that the contamination of the milk was from sputum or some other external cause.¹

In connection with these experiments other guinea-pigs were inoculated, each with 5 c.c. of milk that was obtained from milk-dealers. This was injected into the peritoneal cavities under all of the necessary precautions. One animal died in thirty-six hours as a result of streptococcus infection; one died on the third day from peritonitis resulting from an injury to the intestine with the inoculating needle. The inoculations were made on January 4, 1897, and at the time of the preparation of this article² eight, in addition to the two above mentioned, have died. Of these eight animals four were undoubtedly infected with tuberculosis. In two of them the lesions were confined to the abdominal organs; in one there was a general miliary tuberculosis, and in the fourth the tubercles could not be regarded as the cause of death, for there were only small nodules on the peritoneum, some on the enlarged spleen and in a few glands. In this pig the kidneys, liver, omentum, and lungs were free from tuberculosis. The examination of the nodules on the peritoneum revealed the presence of tubercle bacilli, so that this case also must be regarded as one of mild infection. In reference to the other four that died, one showed a disease of the intestine, with bacteria in the blood that very closely resembled the colon-bacillus. The cause of death in the other three could not be discovered bacteriologically. Hence, if we disregard the two animals that died shortly after inoculation, of twenty-eight guinea pigs four

¹ It has been noted by several observers that tuberculous cows do not always furnish tuberculous milk every day.—[Translator.]

² Date not given.—[Translator.]

were infected with market milk—that is, 14 per cent. These results are modified by the fact that two samples of milk which produced tuberculous infection came from the same herd, being sold by different dealers, hence only three samples of milk can be regarded as containing tubercle bacilli, and the percentage is reduced to 10.7 per cent.

The fact that milk as it comes to the market may contain virulent tubercle bacilli is of the greatest hygienic significance. While it is possible by sterilization to kill the tubercle bacilli that milk may contain, we must remember that a large proportion of milk is consumed in a raw state, indeed, that cow-warm milk is used as a medicine in a number of diseases, as anæmia, debility, etc. We must also remember that the palatability of milk is lessened by cooking, and for this reason the fresh, uncooked milk is preferred, so that the hygienic recommendation to cook all milk before it is used is usually disregarded, except in the feeding of children. But even here, and generally in the “sterilizing” of milk by the laity, sterilization is frequently not accomplished, as is shown by an example of Legay who found virulent tubercle bacilli in milk that was supposed to have been sterilized by heat. These conditions are not very favorable to the public health, and especially when the further point is considered that not only the milk, but also its products, especially the butter, can convey the infection. Attention has already been called to the fact that when milk is allowed to stand or is centrifugalized the tubercle bacilli or their microorganisms are carried upward by the fat-globules, and so enter the cream and the butter. Reports of butter containing tubercle bacilli have been frequent. Among others by Roth, Brusafarro, Obemüller, and others. It must be admitted that, with us, the public, and especially the lower classes, have a prejudice against the sterilization of milk. The knowledge of bacteria and their work has scarcely been disseminated among such classes at all, excepting in caricatures and jokes.¹

As long as the public is not informed as to the various possibilities of infection, and so long as it is not convinced of the transmission of the diseases of animals to man, little improvement can be expected in the field of milk-hygiene in spite of the boards of health, district veterinarians, and compulsory notification. Improvement is obstructed by the fact that the examination of milk for tubercle bacilli is neither simple nor rapid. If we had a rapid and accurate method of determining tubercle bacilli in milk, the suspected samples could be set aside and kept out of the market.

¹ Also true in this country!—[Translator.]

Unfortunately, no such method exists. It is true that a number of signs have been given whereby one is supposed to be able to detect the milk of tuberculous cattle. It is said that it forms cream rapidly, that the cream and milk are prone to undergo putrefaction, and that the milk does not clot. But the value of all these signs is problematic, because they only occur when the milk comes from animals that are extensively tuberculous, and not in mixed milk or milk from cows that are slightly tuberculous.

The ideal and desirable condition in reference to the danger of tuberculous infection from milk would be reached if no milk from tuberculous or suspected animals were sold, especially in view of the experiments of de Michele, who has found toxins in the milk of tuberculous cows, so that it is not only the tubercle bacilli in such milk, but also the poisonous metabolic products that are injurious to the consumer. However desirable as this goal is, it will, nevertheless, be very difficult to reach it in practice. We are not in a position to ascertain the existence of tuberculosis in every case with absolute accuracy, especially in the beginning stages, so we must seek means of lessening the possibility of the milk of tuberculous cows getting on the market, and of destroying the virulence of whatever bacteria milk may contain. For the second object we have sterilization, and this can be done on a large scale in central institutions, or on a small scale in the individual families. Of this something will be said in another connection. It is of more interest here to consider the regulations by which the sale of milk containing tubercle bacilli may be prevented.

As a first measure in this direction, it is necessary to inform the milk-producers as to the possibilities and dangers of the transmission of tuberculosis and other diseases to people through the consumption of milk from diseased cattle. This instruction should also be directed to the end that owners of cattle shall more fully recognize that it is necessary to have a careful veterinary control of milk-cows, and that they must be examined as to their health from time to time, so that the milk of diseased animals can be kept out of the market, all of this being necessary in order to meet the requirements of modern hygiene. In this way the most important service could be rendered to the subject of milk-hygiene. Above all, it is necessary that milk-sanitaria (*milch kuranstalten*) and dairies conducted for similar purposes should be under a careful veterinary supervision. Unfortunately, this inspection is not often required by us, and Vogel has justly said: "A stable that is half clean, and a herd of Swiss cattle that are fed on dry feed, meet

the popular requirement as to a complete dairy, and when it has the recommendation of a physician, it receives the name of milk-sanitarium; it supplies milk for children and infants, and a double price is charged for its product. Whether the cows are healthy or well-fed is not a matter that the public often troubles itself about."

While a permanent veterinary inspection is urgently demanded in reference to the retail milk-producers and the milk-sanitaria, the eventual extension of this inspection to all milk-producers is not to be disregarded. While the milk-control that is usually carried out gives information as to the addition of water, the removal of fat, and in some cases as to the presence of dirt in milk, the matter of freedom from pathogenic organisms or the health of the cows supplying the milk is not covered, although this last requirement is of far greater hygienic importance than the first. It is undoubted that tuberculous cows furnish milk containing tubercle bacilli, and as our knowledge of hygiene is opposed to the sale and use of such milk, it is necessary to grasp this evil at its root and exclude diseased cows from dairies producing market milk.

The diagnosis of disease and the development of appropriate regulations to this end is a matter for experienced veterinarians, but everything indicates that in tuberculin we have a diagnostic agent that makes it possible to recognize even concealed tuberculous infections. But the veterinarian should not confine his attention entirely to the health of the animals; he should also consider the methods followed in the dairy, the feeding, the bedding, the cleanliness, etc.

As to the examination of milk for tubercle bacilli, this is of great importance in connection with milk-control, especially in cities. It serves for the extension and support of the other regulations. To make the entire control depend upon this one point is impossible, for the negative result of an examination does not furnish us with sufficient evidence as to the health of the animal furnishing the milk. The first requirement for the removal of the dangers that accompany the use of milk from diseased animals is systematic veterinary examination and control of all animals that produce milk for human consumption, and the exclusion from the dairy of every diseased or in any way suspicious animal. There are at present so many ways and means that are being considered for combating infectious diseases that are demanding public assistance that one is justified in expressing a wish that the Government should direct its attention to the dangers of infection

through the consumption of milk and to the development of the hygiene of this subject, to the end that there may be a public control of the entire milk-supply from its origin to the consumer. This control and its results would be very difficult in the beginning, but it would be the means of saving many children and would remove a great many evils whose existence and effects will hardly be appreciated until they cease to exist.

ARECOLIN IN COLIC.¹

By S. J. J. HARGER, V.M.D.,

VETERINARY DEPARTMENT, UNIVERSITY OF PENNSYLVANIA.

AMONG the drugs employed to produce intestinal peristalsis for relief from abdominal pain due to intestinal obstruction, tympanitis, constipation, or the presence of irritating intestinal contents, certain preparations are well known. The first agents that promised to be almost specifics, either separately or in combination, were eserine and pilocarpin, and more recently barium chloride. None of these are specifics, and sometimes fail to act when their action is most desired. Another preparation for which marked peristaltic excitant properties are claimed is arecolin.

Arecolin is an alkaloid extracted from the seed of the *areca catechu*, or betel-nut. The seed is light brown and cone-shaped, and the plant is found in equatorial Asia and the adjoining islands. Jahns more recently made a chemical study of the powdered seed, and has isolated a tannin and three alkaloids: 1, arecolin; 2, arecaine; 3, an alkaloid of minimum quantity, whose existence is denied by some chemists (Mouquet). Arecaine is supposed to be toxic.

The only one of these three alkaloids that is of any interest to veterinary medicine is arecolin, which in its physic, chemic, and pharmaceutic properties resembles the alkaloid derived from pomegranate root.

It is soluble in water, alcohol, and chloroform, and with acids forms very soluble salts. Of the latter, the hydrobromate and hydrochlorate are the only ones employed. The hydrobromate is deliquescent, and is, therefore, less desirable for therapeutic use

¹ Read at the January meeting of the Keystone Veterinary Medical Association.

than the hydrochlorate, and is said not to produce the effects of arecolin as effectively as the hydrochlorate salt does.

The therapeutic value and the superior merits of this agent over others used for the same purposes are not absolutely determined, and can only be established by its employment in practice. Some experiments, however, are recorded.

Physiologic Action. Injected subcutaneously, the hydrobromate of arecolin has no local action. Its systemic action is similar to that of eserine and pilocarpin combined; the effect upon the secretions is marked. There is an intense salivation in from four to six minutes after the injection, and continues for about thirty minutes.

Large doses of arecolin produce physiologic effects similar to those of muscarine: arrest of respiration and muscular contractility, and more especially in the dog and the cat is this action decided.

Fifty to seventy milligrammes (one grain) of either of the two salts injected into a dog of four to five kilos (eight to ten pounds) provoke irritability of the heart and tetanic spasms, followed by partial paralysis, but not always by death, unless these symptoms are accompanied by vomiting and liquid alvine discharges.

In cold-blooded animals arecolin in large doses produces excitation of reflex action, convulsions, and then paralysis. In the frog it arrests the heart in diastole. In these animals, also, according to the same authors (Battistini and Scofone), it excites myosis, salivation, diarrhoea, and finally cardiac and pulmonary paralysis.

In small doses arecolin diminishes the heart-beats, influences the rhythm, and increases the number of respirations, excites intestinal peristalsis in the same manner as eserine does, and causes a marked hypersecretion of all the glands in the digestive tract. It is, therefore, an intestinal evacuator more certain than eserine. The intensity of this action is dependent upon the quantity of the alkaloid employed, and is but little marked if the dose given is below a certain mean, about two centigrammes (one-third of a grain hypodermically) for a horse of average weight (Gobbel's).

The symptoms produced by the salts are analogous to the above: cardiac irritability, muscular trembling, tetanic spasms, muscular paralysis, difficult respiration, dyspnoea, syncope, asphyxia, cardiac paralysis, and contraction of the pupil; pin-point pupil in the dog. The antidote for arecolin poisoning is atropia.

Fröhner has made a special study of this alkaloid, and, according to him, it is an active sialagogue in one-tenth to one-half gramme doses (one and one-half to seven grains).

Its laxative action is equivalent to eserine and pilocarpin; it is

about ten times as active as the latter and about equal to the former. In doses indicated above it acts in fifteen to thirty minutes after the injection; its purgative action is accompanied by colicky pain, and in some instances nausea; large doses produce perspiration and abundant emission of urine. Twenty-five grammes in the horse produced epileptiform convulsions, and fifty grammes killed the animal, death being preceded by tetanic spasms, as seen in nicotin and strychnine poisoning. Arecolin is, therefore, a very active agent whose effects are not without danger if the dose employed be excessive.

Arecolin is very rapidly eliminated from the body with all the secretions and excretions, and successive (one hour) doses are, therefore, easily borne by the animal.

Therapeutic Uses. Maume, in 1889, called attention to the action of arecolin upon the secretions, the intestinal peristalsis, and the muscular system in general. Most authors agree that it should have the preference in cases in which eserine and pilocarpin combined are indicated. It is fully as active as eserine, and possesses eight to ten times the strength of pilocarpin; it is more stable than eserine, is more readily preserved, and is more moderate in price. Fröhner has employed it extensively as an excitant for intestinal peristalsis when a rapid evacuation of the intestines was desired, as in colic, obstruction, constipation, etc.; also in the horse when obstruction of the œsophagus, as from carrots, beets, etc., and in verminous colic. Mouquet has experienced the same advantages with arecolin in cases of intestinal indigestion in the horse. And this method of treating non-inflammatory conditions of the intestines accompanied by colicky pain appears to be the most rapid as well as the most rational, and the drug which proves itself to accomplish this object in the shortest time, and with the least danger to the life of the animal, should have the preference.

Arecolin has been used in acute laminitis, acting as a revulsive in drawing the blood from the extremities toward the centre of the body, and favoring the absorption of the material exuded over the podophyllous tissue. Paiman confirms the preceding indication. A horse suffering from laminitis for twenty-four hours was radically cured after four injections of one gramme of hydrobromate of arecolin at intervals of an hour. In a second animal the disease had existed for four days, and the cure was completed after three injections. Arecolin is contraindicated in horses with respiratory troubles or with functional alterations of the heart; also in pregnant females. Common horses appear to be more susceptible to

the action of this alkaloid than well-bred horses. Cattle, it appears, are also very susceptible.

For the horse the dose is one-half to three-fourths of a grain hypodermically. Rather than give a larger quantity, the dose may be repeated. The dog is less sensitive to the alkaloid than the horse. The dose is one-sixth of a grain for a large dog, and proportionately less for a small one.

Many drugs have been placed upon the market and given promise of good results, but our labors were only rewarded by disappointment. I will, therefore, not be too sanguine in my statements, and must admit that further experimentation is necessary to realize the promised advantages of this agent. It is well worth the attempt to prove or disprove the merits which this preparation is supposed to possess.

A REVIEW OF OUR KNOWLEDGE OF PHYTO-BEZOARS.

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CONSIDERABLE interest has been aroused among veterinarians, farmers, and stock-raisers in the United States as to the injury caused to domestic animals, especially horses, by their eating too freely of certain kinds of food. For some time it has been known that cattle turned into rich clover-fields had become sick by feeding too greedily upon the rich and succulent clover-tops. Bloating has been caused by the too free use of such plants.

It is not, however, to this phase of the subject that I wish to revert. A new forage-plant has been recently introduced into America, and has met with much favor among farmers, because it has been found to be quite a good soil-renovator, and yields an abundant and nutritious crop of fine forage. Unfortunately, however, the plant has fallen into partial disrepute, owing to the injurious effects of the hay which was cured after the plant had begun to flower. Dr. F. V. Coville, Botanist of the Department of Agriculture at Washington, has given us an account of a few cases.¹ Mr. William P. Corsa forwarded to the Department of Agriculture a ball of peculiar appearance, stating that it had been taken from the stomach of a horse belonging to Joseph W. Messick, of Milford,

¹ Coville: Crimson Clover Hair-balls. Circular No. 8, Div. of Botany, United States Department of Agriculture, June 15, 1895.

Del., which had been eating crimson clover (*Trifolium incarnatum*), and the death of which was ascribed to the ball. The statement was also made that Mr. Alexander Ryan a few days before had lost a horse from which two similar balls were taken. "About the same time another letter, from an entirely different locality, Kellar, Va., written by B. W. Mears & Son, was received by the Department, accompanied by a ball taken from the stomach of a horse immediately after death. The statement was made that the horse had worked as usual without any signs of disease up to the time of its fatal illness. The horse was suddenly taken with intense pain, and lived only five hours. Another ball, similar to that taken from the stomach was found in the large intestine. Several other horses in the vicinity had died the preceding week, all apparently from the same cause, and the farmers had ascribed it to the feeding of crimson clover." Another case was reported in the summer of 1895 by Dr. Charles F. Dawson, of Washington, who received from a veterinary surgeon of Raleigh, N. C., three balls which he had removed from the intestine of a horse after death.

The balls received were nearly uniform in appearance. They were almost spherical, and varied from three to four and one-half inches in diameter. A microscopic investigation revealed the fact that they consisted of minute, rather stiff hairs, seldom more than one-tenth of an inch in length, sharply pointed at one end, and enlarged or broken off at the other. A comparison of these hairs with those found on the mature crimson clover showed the two to be identical. They become stiff when the plant matures, but in the immature plant are soft and flexible. If horses feed upon overripe crimson clover, the bristly hairs will accumulate and cause death by the formation of one or several of these phyto-bezoars.

Prof. William Trelease, Director of the Missouri Botanical Garden, reports¹ a still more interesting phyto-bezoar. "In January, 1897, Dr. Francis Eschancier, of San Luis Potosi, Mexico, sent to me two specimens, one a ball of surprising accuracy of surface, measuring a little over three and one-half inches in diameter, and weighing seven and one-half ounces, and the other, one-half of a similar ball, about four inches in diameter, and weighing four ounces, stating that sixteen such balls had been taken from the stomach of a bull at the Hacienda de Cruzes, and adding that he believed them to be composed entirely of an agglomeration of the fibres of some cacti, an undigested portion of which formed the

¹ Trelease: Transactions of the Academy of Science of St. Louis, vii. p. 493, November 30, 1897.

nucleus." Inspection proved this supposition to have been a correct one. The specimens were of a brown color, and consisted of the barbed hairs with which the pulvini of the *Platopuntias* are armed. The cattle turned loose in the field are allowed to eat the cacti, as they are quite nutritious, and so the barbed hairs had accumulated in ball-like form until death resulted.

Balls formed of hairs are likewise found in the stomachs of ruminants, to which they have found their way when the animals have licked themselves. Such a one, preserved in the Museum of the Iowa Agricultural College, weighs four pounds and eleven ounces, and measures twenty-five and one-half inches in circumference.¹

Occasionally concretions of similar form appear in the human stomach. In 1894 Dr. W. B. Outten² found one of a conical shape, five inches in diameter in its broadest portion, and weighing fourteen ounces. "These masses appeared to have been formed about a quantity of vegetable connective tissue, intermingled with starch, etc., and subsequently increased by the same materials, yeast-cells, etc.

"In discussing the use of oat-bran as a food for domestic animals, especially horses and donkeys, Dr. Harz³ characterizes it as a dangerous food-material, because it favors the formation of large bezoars, which he had previously discussed in an extensive paper,⁴ in which is given a classification of structures of this kind, with a very considerable citation of earlier literature."⁵

In the West and Southwest, where one of the opuntias with longer spines is fed to cattle (*Opuntia Engelmanni*), it is customary to remove the long spines, but this does not entirely remove the danger of their use. The late Dr. Vasey, Botanist of the Department of Agriculture, in a publication of that Department gives a number of instances in which cattle have died from an accumulation of spines in the mouth and stomach.

This review of our knowledge of phyto-bezoars clearly shows that the subject of disease as caused by plant-foods is an important one for veterinarians, farmers, and stock-raisers to comprehend, because upon it depends the safety of cattle that are turned out without supervision into the open pasture.

¹ Loc. cit.

² "A Case of Double Gastrolith Removed by Gastrotomy." The Medical Fortnightly, St. Louis, August 15, 1894.

³ Harz: Landwirthschaftliche Samenkunde, ii., 1315.

⁴ Beiträge zur Kenntniss der Pflanzenbezoare des Pferdes und Rindes Deutsche Zeitschrift für Thier medicin und vergleichende Pathologie, i. 393-407, 1875.

⁵ Trelease: Loc. cit.

TRAUMATIC PERICARDITIS OF THE OX.¹

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IN presenting this subject to the Association I desire to give a short history of two cases that came under my observation during this year, as a basis for discussion of this common accident and its differential diagnosis.

CASE I.—The subject was a shorthorn milch-cow, belonging to Mr. Quistgart, living a few miles east of Kansas City, Mo. She was a large, eight-year-old cow, in good condition, weighing about 1200 pounds. First seen January 5, 1897. Had been well up to the previous day, when she refused to eat and showed signs of pain. Respiration slightly increased and painful, grunting with each inspiration. Temperature 103° F.; pulse accelerated, small, and hard. Appetite lost and rumination suspended, with some tympanitis. Alvine discharge wanting. Auscultation and percussion of the thorax revealed nothing abnormal except diminishing heart-sounds. Diagnosis: Indigestion, with possibly inflammation of the omasum. Prescribed saline cathartics with nuxvomica. This was the last I saw of the cow alive, but her condition was reported to me two or three times a week by the owner, until she died three weeks later.

During the first eight to ten days the bowels remained inactive, in spite of the repetition of the previous medication. After the tenth or twelfth day an offensive diarrhoea was present, lasting to the end. Not seeing the patient after the first visit, I am not able to report any of the cardiac symptoms. Later the owner was advised of the probability of a cardiac traumatism.

Post-mortem revealed the pericardium greatly distended with a purulent fluid, amounting to, at least, two gallons. The pericardium was greatly thickened and firmly adhered to the diaphragm, and its corresponding inner surface adhered to the apex of the heart.

The epicardium was also thickened, deeply furrowed, and of a grayish-white color. A piece of bailing-wire, five inches long, was found in the contents of the sac, with well-marked traces of its previous penetration of the walls of the reticulum, diaphragm, pericardium, and heart, the end having penetrated the wall of the left ventricle to some depth. No other lesions were found.

¹ Read at the December meeting of the Missouri Valley Veterinary Medical Association.

CASE II.—A Holstein cow, seven or eight years old. This case came under my care through a brother practitioner being called away from the city, leaving his patients with me. From history obtained from the owner, concerning the cow, she had taken sick about two weeks previously with symptoms similar to those reported in Case I., and had received about the same course of treatment.

July 3d, when I first saw the cow, I found the temperature 103° F.; hurried but not painful respirations; pulse accelerated, small, and feeble. Auscultation showed respiratory murmur wanting in the lower half of the left side of the thorax, and nearly as bad on the right side. The same area gave a dull sound on percussion. In the upper part of the chest the respiratory murmur was clear, but louder than normal. No heart-sounds were audible, but a clear, tinkling sound could sometimes be heard in the cardiac region. A cough was also present, as well as a dropsical swelling beneath the sternum, extending upward nearly to the throat. Deglutition was difficult; the cow was very weak, and rapidly losing strength from an exhaustive diarrhoea. Diagnosis: Hydrothorax. Prescribed stimulants and tonics with iodide of potash. Saw the cow every two or three days from then until she died, some ten days later.

Symptoms remained the same until two days prior to death, when an extremely offensive odor was present. Neither the breath nor feces gave this odor to any marked degree, yet the stable seemed to be permeated with it.

Dr. S. Stewart assisted in the post-mortem, which revealed the pericardium greatly distended, nearly filling the inferior half of the thoracic cavity. The contents, a very offensive, purulent liquid of a brownish color, not measured, must have been more than three gallons. Lying loose in this liquid we found a piece of an umbrella-stay (the stay that supports the ribs on the handle) about six inches long. No other lesions were noted.

These foreign bodies usually, if not always, enter the pericardium from the reticulum, the anatomical arrangement of the inside of which is well adapted for entangling any indigestible substance, the honeycomb or pockets of which can easily entangle a pointed substance, and should it become directed toward the diaphragm, the pressure from the rumen behind acting with the contractions of the diaphragm, tend to force the sharpened end through its walls. The pulsations of the heart assist in forcing it through the pericardium as well as the walls of the heart itself. Once a foreign substance has entered the pericardium, even though it is aseptic, it sets up suffi-

cient irritation to cause inflammation with an outpouring of serum. Should the foreign body be septic purulency results.

Many cases of cardiac traumatism are recorded. Gamgee reports one observer having found a table-knife, seven and one-half inches long, that passed from the reticulum to the left ventricle, and in another case a ramrod, fourteen inches long; also a pomegranate thorn was found under one of the left auriculo-ventricular valves, with a fistulous tract extending to the reticulum.

Some authors think needles and other small, sharp bodies pass from the œsophagus to the pericardium; but in most instances evidences of them having passed from the reticulum are marked. All observers agree that many foreign substances, even to pieces of bottles, are often found in the reticulum of the cow. Especially is this true of cows that are allowed to run at will about town; in fact, so fond are they of chewing such things that but little rubbish is exempt from their efforts to devour.

In this class of ailments of meat-producing animals where successful treatment is beyond our reach, a positive, early diagnosis is to be desired, for in the early stages the flesh might be used for food, which otherwise would be lost to the owner.

The earlier symptoms are, as a rule, associated with disturbances of the digestive tract, and, as derangement of the latter greatly predominates, it is but natural that the cardiac lesions be overlooked and valuable time lost. We find a great variety of symptoms of catarrhal affections of the stomach and bowels. Digestion will, as a rule, be suddenly suspended. As a result of this, these organs are distended with gas, peristalsis is arrested, and constipation follows, all as a result of shock to the system from the wound to the heart, or the irritation to the heart produces an increased peristalsis, and there is an increased and frequent alvine discharge. Temperature rarely rises more than one or two degrees.

These symptoms being so common in cattle-practice, due to other causes than cardiac traumatism, in which the practitioner would usually give a favorable prognosis, makes the cardiac symptoms very valuable, especially in animals known to be so liable to this lesion.

Symptoms furnished by the heart: Here again we find a variety of modifications. The pulse may be accelerated, wiry, hard, and small, or it may be extremely feeble. In either case the modifications will greatly exceed the disturbances of the digestive organs or body-temperature. The heart-sounds would not be greatly changed except they be feeble and less distinct than normal. Per-

cussion sometimes reveals an increased resonant area over the heart.

The serious nature of the cardiac symptoms lead us to think of the heart being the member primarily disturbed.

As idiopathic lesions of the heart are rare in otherwise healthy animals, we would be at least reasonably safe in suspecting a traumatism, especially if the subject be a cow that is allowed to roam about town, where she has access to all kinds of rubbish. When an exudate fills the pericardial sac the pressure compresses the auricles and causes a passive hyperemia of the pulmonary tissue, causing cough, dyspnoea, and increased respiratory movements. Pneumonic symptoms are then likely to predominate and obscure the cardiac lesion, but the disturbances of the pulse and persistence of the vesicular murmur should prevent error.

As a further result of the exudate pressing on the venous trunks the jugulars become engorged and distended, causing a venous pulse. There may be splashing of water with the pulsations of the heart, or a tinkling, metallic sound from pericardial tension. But the blowing and whistling sounds common in valvular insufficiency are not to be expected.

The obstructed venous circulation will be likely to produce anasarca of the inferior parts of the body as well as dropsy of the cavities, but these are not diagnostic symptoms.

The duration of the disease is variable. If the heart is not seriously wounded, life is often prolonged for weeks or even months, and death is due to exhaustion, or complication resulting from a weakened circulation, or as a result of pyemia or septicemia from the purulent effusion.

Should the heart be seriously wounded death might result at any moment after the wound is inflicted.

A few cases of recovery have been reported by retrogression of the foreign body into the stomach or its destruction by chemical process.

AMONG the veterinarians interested in the bottled-milk question at the several meetings of the Sanitary Committee of the Board of Health of Philadelphia were to be noted Drs. Leonard Pearson, M. E. Conard, W. L. Nunan, W. Horace Hoskins, E. B. Ackerman, of Brooklyn, B. F. Senseman, Frank L. Smith, Charles Earnest, G. R. Hartman, with many prominent physicians and bacteriologists.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS, PH.D.,
PRINCETON, N. J.

CONTRIBUTION TO THE ETIOLOGY OF LAMENESS IN COLTS.
By M. Caspar.—An article in the *Monatsheften für Thierheilkunde*, vol. viii., No. 6, by Gmelin, entitled "A Contribution to the Knowledge of Infectious Inflammation of the Navel in Calves and Colts," has led me to publish here the result of the bacteriological investigations which I made in 1893, at the Pathological Institute of the Berlin Veterinary High School, in reference to two cases of lameness in colts.

I.—On April 5, 1893, a colt, four days old, which had died the day before, was brought to the Pathological Institute. Anatomical condition: The colt was lean and lank, the muscles flabby. The orifice of the navel was closed, the stump of the umbilical cord colored black, hard, dry, and rough. In the free space of the abdominal cavity about one-half litre of a yellowish-red and slightly muddy fluid was found. The position of the intestines was normal; the intestines were pale; the mucous membrane of the stomach and intestines without especial deviations. The umbilical vein was noticeable, like a bluish-red cord, about as thick as the little finger, but the breadth was not the same in the different sections of it. Close beside it in the peritoneum numerous fine blood-spots about as big as a pinhead could be noticed. These were also visible at other places on the abdominal wall. The umbilical vein was filled almost to bursting with blackish-red blood, which for the most part had coagulated. At the outer end the wall of the vein attained the circumference of a lentil, and was grayish-red and cloudy in color, but with no overlayer worthy of mention. The umbilical arteries were about as thick as a lead-pencil, and bluish-red, decreasing in size as they approached the aorta. Their contents consisted of blackish-red blood almost entirely coagulated. The liver was large, the left lobe about as large as the right, the whole bluish-red and firm. A section of the same was brownish-red. The outlines of the acini were hardly recognizable. The spleen was about 24 cm. long, 12 cm. broad, and $2\frac{1}{2}$ cm. thick, grayish-blue in color, the surface slightly granulated, the

edges rounded, the capsule stretched, and a section brownish-red in color. The kidneys were grayish-brown and smooth. The central layer of a section was pale, yellowish-white; the outer layer grayish-brown. On the front and back surfaces of the diaphragm numerous spots of blood were visible, some shaped like a point, and others more elongated. The lungs were very large and brownish-red. Different parts, especially on the front lobe, were free of air, somewhat sunk in and bluish-red in color. The section of the lung in general was brownish-red, smooth, and the tissue was œdematously saturated. Both chambers of the heart were filled with black blood, for the most part coagulated. Beneath the epicardium several bloodspots about the size of a pin-head could be seen. Beneath the endocardium these spots were more extended, appearing in patches. In the joints no changes were visible.

Bacteriological condition: In the blood of the umbilical vein, of the heart, and in the spleen numerous microorganisms were visible, of which two kinds could be distinguished. The one (cocci) were round or oval, often lying together in pairs with their long sides parallel. The others (bacilli) had the clear rod-shape, were somewhat longer than those of the swine-pest, had rounded ends, and were partly without color in the middle.

The following cultures were prepared with great care: Four agar tubes from the blood of the umbilical vein; four agar tubes from the umbilical vein of the heart; four agar tubes from the spleen; two gelatin tubes from the blood of the umbilical vein; two gelatin tubes from the umbilical vein of the heart; two gelatin tubes from the spleen; two gelatin plates were covered with blood from the heart. At the same time three mice were subcutaneously injected with small pieces of the spleen, about the size of a millet-grain. After twenty-four hours there was no sign of development on the gelatin plate nor in the gelatin tubes. On all the agar tubes shining, grayish-white colonies about the size of a lentil developed. The edges of these were notched, and the centre was raised and could be easily separated. The colonies were separated from each other. Between them were observed on the surface very small, transparent, drop-like colonies lying close to each other, and not exceeding a pin-head in size. The small colonies consisted of cocci which were often wreathed into each other. The large colonies consisted of the little rods with rounded ends described above, and could be easily colored. They were about three times as long as broad, and lay separately and in pairs.

When they were colored with methylene-blue the middle often remained colorless, and they resembled the appearance of the septicæmia-hemorrhagica bacteria. From one of the large colonies three agar plates were covered. In twenty-four hours plates 1 and 2 were so thickly sown with colonies that they ran into each other. On plate 3 separate circular colonies with notched edges, grayish-white, and not quite the size of a lentil, were visible. They consisted of the little rod-like organisms mentioned above.

The mice that were subcutaneously injected became sick after twenty-four hours. Their hair bristled up, respiration was increased, and their eyes became sticky. While two recovered during the following days, one of them died forty-four hours after infection. An examination showed the eyelids sticky, with a mattery secretion. No fluid in the abdominal cavity. Peyer's glands were dark-red and swollen, the follicle in them grayish-white and as large as a pin-head, the capillaries filled to bursting, but otherwise nothing abnormal in the intestines. The spleen was at least three times its normal size, bluish-red, with the edges rounded. The liver very large, dark-red; on the upper surface numerous little gray-white prominences could be detected. Kidneys hardly enlarged, bluish-red. The lungs grayish-red and œdematous. The heart filled with blood. In the blood there were comparatively many round and oval cocci, mostly lying in pairs, but here and there arranged in chains. On coloring them doubly with eosin and methylene-blue, the cocci appear blue surrounded by a pretty large bright-red halo or ring. This ring can be seen in the blood-preparations also, which are simply colored with methylene-blue. In the spleen these same formations were found very numerous, in pairs and in shorter chains. In the grayish-white places of the liver similar microorganisms were found; likewise in Peyer's glands, and in the lungs. These cocci are neither morphologically nor biologically distinguishable from the streptococcus pyogenes, and must be regarded as identical with the same.

II.—On April 11, 1893, there was sent to the Pathological Institute a colt, three weeks old, which had been dead a few hours. The examination, made immediately, showed the following: A strong colt, with powerful muscles. At the navel an opening about the size of a pea was noticed. The edges of this were dirty and sticky. With pressure a drop of mattery fluid oozed out. The under skin of the right fore-and hind-thigh was swollen, with a watery and bloody infiltration, muddy, and about the consistency

of gall. The intermuscular tissues were likewise affected (œdema phlegmonosum). In the abdominal cavity the contents were normal, as well as the position of the viscera. The intestines on the outside showed a grayish-white to a grayish-yellow color. The mucous membrane of the digestive channel was pale, without especial changes. The umbilical vein was as thick as one's finger, bluish-red and fluctuating to the touch. It contained an offensive, grayish-brown fluid in which small particles of solid matter were noticeable. The inner wall of the vein was a dirty grayish-white. The same contents and condition of the inner wall could also be traced as far as the veins of the liver. The umbilical arteries were bluish-red, as thick as a quill, and in the neighborhood of the navel contained a muddy, grayish-red fluid. Further on, blood, mostly coagulated, was found. The liver was large, bluish-red, and muddy; the section was bloody, brownish-red, with the marking of the acini unclear. The spleen was 39 cm. long, 17 cm. broad, and 2 cm. thick, grayish-blue, and hard. The surface was slightly uneven, the edges not sharp, and a section brownish-red. The kidneys showed brownish-red through the capsule. They were smooth and enlarged; the central layer was a pale yellowish-white, the outer layer grayish-brown, muddy, and somewhat broadened out. In the sacs of the abdominal wall a large quantity ($\frac{1}{2}$ litre) of grayish-red fluid. The lungs very large, œdematous, and brownish-red. The pleuræ were smooth, slimy, and moist. Both chambers of the heart filled with mostly coagulated blood. Subendocardial bloodspots noticeable. The capsules of the joints of the right fore- and hind-thigh were swollen and red. The synovia increased, of a yellowish-red color and of a muddy consistency. The marrow of the femur, humerus and radius was dark-red both in the diaphysis and the epiphyses. The hollow in the bone was comparatively small, shaped like a slit, and filled with thick blood.

Bacteriological conditions. In the mattery contents of the umbilical vein numerous cocci (streptococci) and rod-like bacteria were found. In the blood of the heart, in the spleen, in the marrow, and in the fluids at the joints only cocci, singly, in pairs, and in chains, could be detected.

The following cultures were made from the contents of the joint of the right ankle-bone: Three agar tubes, three glycerin-agar tubes, three blood-serum tubes, and three gelatin tubes. The same number of cultures were made of the blood from the heart. At the same time four mice were subcutaneously injected with fluid

from the joints and blood from the heart. The first mouse received $\frac{1}{3}$ gill of fluid from the joints; the second, $\frac{2}{3}$ gill; the third, 1 gill; and the fourth, $1\frac{1}{3}$ gills of blood from the heart.

After twenty-four hours in a breeding temperature only a very slight development could be noticed on the agar, glycerin-agar, and serum tubes. On the agar tube, after forty-eight hours, a fine thin coating was recognizable, consisting of the smallest grayish-white points. Microscopically, these consisted of little cocci which lay singly and in pairs. In the glycerin-agar tube the same development of little cocci, but somewhat more pronounced. In the blood-serum tube the same development as in the agar. In the gelatin tube nothing took place.

All the mice that were subcutaneously injected on April 11th became sick after twenty-four hours, showing bristling hair and sticky eyes. Three of them recovered the following days, but the one which had received $1\frac{1}{3}$ gills of the blood from the heart died after forty-eight hours. The post-mortem examination showed on the under edge of the liver a colony about the size of a pin-head, in which were many little cocci; also in the rest of the liver-tissue the same cocci, singly and in pairs. The spleen was somewhat enlarged; in the tissue many little cocci; in the blood only a few cocci could be found. From the blood of the heart of this mouse four grape-sugar bouillon tubes were prepared. In this bouillon, after two days, a strong crumby sediment formed, which became cloudy when shaken. Masses of cocci were present in it, arranged almost entirely in short chains. Here we had to do with streptococci in a pure culture.

In two cases of colt-lameness I have succeeded in showing in the blood and organs the presence of a microorganism—once in pure culture, the other time associated with another—which must be designated as the *streptococcus pyogenes*. In regard to the other species, which I did not regard further at the time, it is now clear to me that I had before me the *bacterium coli commune*. Lately I have made some interesting investigations in regard to the presence and the significance of this bacterium in animals, and from a comparison with the permanent preparations which I made at that time, and from the manner and form of their growth, I have now no doubt that I had to do with this microorganism. That the same was found in the blood and organs only in the first case, and not in the second, is explained by the fact that the post-mortem on the first colt was not made until twenty-four hours after death, while in the second it was made immediately.

In the first case there was ample time to enable the coli bacterium normally arising in the intestine to get into the blood-channels. In each case only a subsidiary role can be attributed to it, as it was only present in one case.

As regards the streptococcus pyogenes I am very much inclined, in etiological connection, to ascribe great significance to it. The metastatic mattery processes in the joints can be, without difficulty, attributed to the working of this microorganism. However attractive this explanation may be, nevertheless I am not in a position to designate it as the original cause of lameness in colts so long as no one has succeeded in producing the disease by experiments which shall follow the natural method of infection as closely as possible. I was at the time not in a position to make such experiments on colts, and realize this deficiency in my proof very well.

My investigations have shown clearly that in two plain cases of lameness in colts bacteria other than the septicæmia-hemorrhagica group were not present. The presence of the same could not have escaped me in the microscopic investigation, in the cultures, and in transferring them to mice. Gmelin, as appears in the aforementioned article, found, in the infectious inflammation of the navel in calves, bacteria which, according to their morphological and biological character, must be reckoned to the group of septicæmia-hemorrhagica bacteria. Gmelin leaves the question open whether these bacteria are the only cause of the diseases grouped commonly under the head of lameness, and demanded further investigation. This demand led me to publish the observations which I had made four years ago.

So much is certain : That the result of Gmelin's investigation must not be generalized, and the conclusions which he has drawn cannot at this time be applied to all cases of this peculiar disease. I consider it going too far to apply the conclusion which Gmelin had reached in calves to the cases of colts simply on the basis of agreement in clinical, anatomical, and microscopical results. I am not convinced that he has succeeded in proving the bacteria of septicæmia hemorrhagica present in the lameness of colts.

The state of the question is therefore this at present : Gmelin, in the infectious inflammation of the navel in calves, has established the presence of bacteria which, in accordance with their morphological and biological characteristics, belong to the group of septicæmia hemorrhagica, while in two cases of lameness in colts I have shown the streptococcus pyogenes to be present.

It is quite striking that members of the profession who have plenty of material have made so few bacteriological investigations in regard to this. It would be, I think, no very difficult task to clear up the etiological side of this disease by experiments in transferring the disease. I have never had the opportunity of seeing another case of lameness in colts, yet this must often occur on large stud-farms. In the veterinary literature of the last ten years I have been able to find nothing, except Gmelin's article, which gave any definite information in regard to the nature of the specific microörganism. That the disease is of an infectious nature no one can seriously doubt from the present point of view of science. — *Deutsche Thierärztliche Wochenschrift*, May 8, 1897.

EMPHYEMA OF THE CAVITY OF THE RIGHT UPPER JAWBONE IN THE HORSE. By Schuemacher.—A valuable work-horse, four and a half years old, had been for a month not so lively as usual—often hung its head to the ground, and ate less than in common; yet it was able to work until November 22, 1896, when it came under my care. It showed great faintness, difficulty in breathing, with contraction of the flanks, and groaned for sometime after lying down. There was a slimy, mattery running at the nose, principally on the right side; with it all there was still some desire to eat; the temperature, 39.6° – 40.5° C.; pulse 62; respiration 28–35 to the minute. On the 24th symptoms of acute pleuropneumonia on both sides were present, which, in spite of energetic treatment, caused death on the 28th of November.

The post-mortem examination, made on the same day under the auspices of the Baden Insurance Company, gave the following result: The stomach and intestinal tract, in appearance, mucous membrane, and contents, were normal; likewise the peritoneum, liver, and spleen. Both kidneys, especially the right, were considerably enlarged; the layer-substance muddy and swollen, the marrow-substance reddish-brown; in the kidney-chambers about 3 gr. of purulent slime. In the abdominal cavity about $2\frac{1}{2}$ litres of unclear, reddish-yellow fluid filled with fibrin coagulations; the pleura costalis, especially on the right, coated with a yellow, flaky layer of fibrin, in places deeply reddened. In the windpipe a foamy, filthy liquid; the mucous membrane of the same and of the larynx were swollen, very red, and juicy. In both lobes of the lungs, and especially at the points, thickened tissue; on cutting through, purulent gangrenous congestions and caverns filled with decayed tissue were found.

To find out the cause of this purulent, gangrenous inflammation of the lungs, the skull was sawed through, for it was not an ordinary case of pneumonia. On opening the cavity of the right upper jaw it was found to be filled with a yellow, crumby pus; the thin lamella, which normally divides the cavity into two chambers, was wanting; the periosteum of the surrounding bones was 1.5–2 mm. thick, easily removed, bluish-red, and very sappy; the roots of the molar teeth 2 and 3 were carious; the bony edges of the apertures leading to the right nasal canal looked as if they were eaten through by caries.

The course of the disease is probably to be explained as follows: Originally a purulent alveolar periostitis and caries of the root of the second and third molars; irruption of the pus into the cavity of the right upper jawbone, and a continuous purulent inflammation of the mucous membrane of this cavity and the periosteum, with caries of the surrounding bones; then the formation of an abscess; further, a flow of pus through the aperture sinus maxillaris into the nasal cavity; inspiration of the pus through the windpipe into the lungs, causing here a purulent, gangrenous pneumonia, and finally pleuritis; secondary metastatic nephritis, as a general infectious phenomenon.

The condition in the cavity of the upper jaw and its surroundings, revealed by the post-mortem examination, shows that at times a pneumonia, whose cause cannot be explained, or is wrongly attributed to a cold, is to be attributed to a pathological process in the upper channels of respiration and its environment.

In conclusion, it is worthy of mention that during life no swelling or other change was noticeable in the region of the upper jaw which could have suggested an operation (trephining) as a possible remedy.—*Idem*.

THE increased attention to riding is now noted in the scarcity of good saddle-gaited horses. Members of riding clubs over the country, especially in the large cities, are much more interested in the manning and gaiting of horses, and to better appreciate the best form are securing the services of veterinarians and others through series of lectures in their clubs. New York has already been edified by a series of lectures by Prof. R. S. Huidekoper, and Boston's riding club follows in the same direction.

REPORTS OF CASES.

SOME CASES IN CATTLE-PRACTICE.¹

SELECTED BY R. H. HARRISON, D.V.S.,
ATCHISON, KAN.

RUMENOTOMY. A thoroughbred Jersey cow, five years of age, in an extremely emaciated condition.

History. Came of healthy parents, and was, up to her fourth year, the mother of two healthy heifer-calves. She lost her third calf the fourth month after conception; at this time had no serious trouble, but shortly after went dry, and was not bred again for eight months. Two months after aborting she began to lose condition, although generously fed and nursed; her appetite was very capricious, and at times was noticed to cough, especially on getting up, and to eat foreign bodies, and at times was affected with diarrhœa, which would last a week or ten days. At no time was any discharge noticed from the vulva. When called, the owner said that she seemed especially fond of rusty iron, and he thought she had swallowed an old iron currycomb that had been broken and thrown in the cow-lot; he knew she had swallowed the handle, but was not sure of the rest of it, and he thought she was choked "low down."

When seen, the animal was lying down naturally in a loose box; extreme emaciation; abdomen tucked up, flanks very hollow; on getting up, coughed spasmodically for a full minute. Temperature subnormal, 95°; respiration 8; pulse 32; very weak; staggers when made to walk; nose dry; mucous membranes very pale; coat dry and staring, and shows the remains of the greater part of winter's coat. Pressure over the larynx provokes no cough, but exercise in walking does. Examination, per vaginam, shows os uteri closed; per rectum, outlines an empty uterus; udder normal. Examination of the lungs shows resonance over all the chest, except on the left side; low down between the fifth and ninth ribs, a hand's-breadth square, dullness detected; on auscultation, the respiratory murmur was very weak on both sides of chest, and least over dull portion. Fetid diarrhœa present; no food had been taken for thirty-six hours; but two gallons of corn and oatmeal-gruel, with raw eggs, had been given by drenching. On making

¹ Read before the December meeting of the Missouri Valley Veterinary Medical Association.

pressure over left flank, pushing rumen forward, the animal shows distress, and coughs. The operation of rumenotomy was advised, and the animal prepared by feeding, or rather giving, punches of eggs, grape-brandy and milk several times a day for a week, as well as one ounce of Liebig extract in solution, daily.

The operation consisted in opening the rumen and removing the currycomb in two pieces, four pounds of nails, five pounds of broken spikes, a dress skirt, parts of several boots, shoes and rubbers; a coil of baling-wire; twenty-four balls of hair, the largest the size of an orange, the smallest the size of a walnut; a cog-wheel, $1\frac{1}{2}$ inches in diameter; pieces of wood, and much clay. There was very little food present. In examining the cavity of the rumen, by means of portable electric light, discovered a piece of wire penetrating the rumen into the chest; its extraction gave rise to much pain, and was followed by an escape of two quarts of creamy pus, with a slight hemorrhage. A small sound was introduced through this opening for a distance of twelve inches, but its end could not be felt on the outside of the chest. The abscess was washed out with diluted H_2O_2 , and the rumen sponged with a 2 per cent. solution of creolin, and a gallon of cooked chopped hay, oatmeal, and cornmeal was introduced into the rumen. The incision of the rumen was closed by turning edges in, using kangaroo-tendon suture, made continuous; the opening of the flank was closed with quill sutures and reinforced by a bandage; animal was given punches, as before, in generous quantities, and continued for forty-eight hours, when some mashed carrots and apples, with steamed clover-hay, were taken naturally. Twenty-four hours after operation the temperature was 101° , but animal looked brighter; wounds appeared to be doing well. Forty-eight hours after, temperature normal. Begins to eat, and the punches are given less frequently; drinking-water is given often, in small quantities (wound of flank doing well), in which is placed fl. ext. nux vomica and gentian, together with sulphite soda and salicylic acid; *no iron*. The stitches in wound of flank are removed in a week, which is cicatrized in two weeks; bandage is still kept in place with a pad of creolated oakum over wound.

Result. Animal recovers health, strength, and condition; gives birth to a healthy calf, and dies two years after the operation, from tympanitis, as a result of low choking.

Post-mortem, made four days after death: find body well nourished, and the usual lesions of tympanitis, together with rupture of walls of rumen; in thoracic cavity find a closed cyst,

filled with a little serum, between pleuræ and adhesions of pleural surface to lung; the rest of the alimentary tract was carefully examined, but no foreign bodies found; the cause of choking was a whole potato.

This is the first case in my practice among bovines where I used animal food, and where food was introduced into the stomach from the outside. It was done as an experiment, for I did not expect the patient to recover.

FRACTURE OF PENIS. *Subject.* A five-year old Durham bull.

History. Was kept in a pasture with twelve cows and eight yearling and two-year old heifers. Was observed to cover a cow Saturday and Sunday; to repeatedly attempt to cover a heifer ineffectually. Monday evening came up with the cows and showed much distress, making repeated attempts to pass urine, straining violently, bellowing and pawing. The owner noticed the penis protruding several inches from the prepuce, covered with dirt, and so swollen that it could not be forced back into place. He said he took a shingle and scraped the dirt off, and that it bled very freely. The next morning, the animal being down and unable to get up, he returned the organ within the prepuce, after greasing it, and noticed a small quantity of urine voided after much straining.

On my visit, the next day, found animal down beside some straw ricks, in agony, with a strong ammoniacal odor from the breath and body; bellowing, groaning, and straining so violently that the rectum was prolapsed; had lost all control over the hind legs, but would pull himself along with his forelegs. Was unable to expose penis on account of a large swelling within the prepuce. Examination through inverted rectum showed bladder enormously distended. On pressure, and the animal straining violently, a pint of very high-colored and strong-smelling urine is evacuated in a very small stream; this manipulation gave rise to an agony of pain, and the animal died immediately.

Post-mortem: At once. Bladder the size of a bushel basket, with walls thickened and mucous lining congested; urine high-colored and ammoniacal; ureters and pelvis of kidneys filled with urine; kidneys congested; incising prepuce and exposing penis shows a dark-colored swelling four inches from meatus, the size of a man's fist, which on incision shows a bloody tumor, with a complete disintegration of cavernous tissue, the spaces being one cavity and the partitions as merely débris; the extremity of the organ is excoriated, ulcerated, and but slightly swollen. This is, I think, a

rare case, and one that could properly be called a fracture; an organ with its meshes (cavernous tissue) filled with blood, in a state of erection, to receive a sudden violent blow, or bending, sufficient to cause a breaking or fracture of tissue.

It occurred to me that possibly, by earlier attention, the patient might have been saved by relieving the distention of bladder by puncture or perineal incision and by treating the fractured organ afterward.

EPITHELIOMA OF CLITORIS. Holstein cow, seven years old.

Presents a pear-shaped tumor, hanging from within the vulva, involving the clitoris, excoriated, bleeding very easily, and very erectile. Belonged to an ignorant German farmer, and was kept on account of her milking quality. Tumor had been growing for a year, and the owner had used a powder composed of burnt-alum and powdered sulphate of copper over it, with no result; the animal was a very bad kicker, and it was necessary to tie her hind-legs together every time she was milked. She had not been bred for two years; came in rut regularly, and was especially vicious, and the tumor very erectile and sensitive during the period.

Operation. The tumor and the clitoris were removed in three days by the application of a strong elastic ligature, renewed daily, the parts being kept clean with creolin solution. The advantages of this method of extirpation, which was more successful and advantageous than the knife or cautery, were, first, that it was bloodless, and, again, that the secondary slough following ligation by elastic ligature is of much benefit, for you can get rid of the root of a malignant growth more certainly than by other means.

Result. The case did well; the parts were kept clean, after sloughing had taken place, until cicatrized with a 10 per cent. solution of creolin. Animal was bred in due time, and up to three months ago, eighteen months after the operation, had had no return of the tumor.

CALCULI, PREPUTIAL AND URETHRAL. A Durham yearling bull. No previous history; was noticed to strain violently, and pass no urine; was caught up and examined by owner, an intelligent stockman, who found the tuft of hair at end of prepuce matted together in such a manner as to close the opening completely; this was softened with warm water, and an unsuccessful attempt made to draw the penis out.

Was called immediately and found animal in much distress;

constant tenesmus, quickened respiration, sweating, and looking around at left flank and groin. Pulsations could be seen and felt at the perineum; the prepuce shows a mass of sebaceous and sabulous matter filling its opening and extending under the penis a distance of two inches. A rectal injection of a pint of linseed oil and one-half ounce of chloroform was given, which relieved the tenesmus. The state of the bladder could not be determined on account of the anus being too small to admit the hand. The mass filling prepuce was readily removed, having been softened by the owner washing and injecting with hot water. In trying to force penis out at prepuce it was grasped above the S in the groin, where a foreign body was felt, filling the urethra; pressure of this enlargement caused exquisite pain and violent straining. Hoping to reach and dislodge the calculus, and explore the bladder at the same time (the rectum not admitting the hand), a linear incision was made in the perineum, into the urethra just below the anus, allowing a great quantity of urine to escape, which was high-colored, but contained no sabulous matter. Examination of the bladder with steel sounds show its cavity free from calculi. The attempt made to remove calculus found below, through this opening, failing on account of the very small size of the urethra, an incision was made directly over the stone, and it was readily removed; it was the shape and size of a large bean, studded with rugosities, and weighed six drachms; it had become sacculated just above the curve, or S, in the penis at the groin; this wound was made *clean*, and interrupted sutures taken, reinforced with collodion and iodoform. The prepuce was cleaned with hot creolin solution, and a mild astringent, to be injected once daily, was left. The wound in perineum was left open for twenty-four hours, with a catheter introduced into the bladder, and afterward closed with a stitch. The animal was placed on rations of grass in small quantities, and a cupful of flaxseed-jelly used in every bucket of drinking-water, and quiet ordered.

Result. The case did very well; wound over calculus healed by first intention; the perineal wound, which was irritated by catheter, was three weeks in cicatrizing. In operating again, and having but a perineal wound, I would suture at once, and reinforce stitches, as there is but very little areolar tissue between the urethra and skin at this point.

This animal was sold to a relation of the owner, who lives in Nebraska, and up to the present time, a year after the operation, no ill reports have been sent.

RABIES. A grade Durham cow, five years old, belonging to the same owner as the bull with fracture of penis. Had acted strangely for a few days, showing great irritability, desiring to fight other stock; has fallen off in milk and flesh; has no appetite, but takes usual amount of water. Has made vicious attacks on the owner and his helper. A bulldog belonging to the farmer had left suddenly two weeks before the cow showed the first uneasiness; the dog and this particular cow were great enemies, and she had been bitten on the nose, hocks, shins, and tail. Before calling me the owner had separated her from the rest of the herd, and had chained her up in a basement stable, as she was so vicious with his hens, ducks, and young pigs when loose in the corral.

When seen the animal appeared very alert; eyes bright and protruding, would make a vicious lunge at you as you stood in front of her, and when a harmless old pig was shown she had a paroxysm of fury, climbing into the manger with her forefeet, bellowing very hoarsely, and frothing at the mouth; leading another cow in front of her caused another frantic attempt at attack. Allowed to quiet down for a time, and watched through a window twenty feet away, noticed she would make vicious rushes at chickens and hens that would come near; would attack imaginary objects, butting post and manger so viciously that both horns and cores were fractured close to the head, and a considerable hemorrhage was set up. She presented a pitiable object—face covered with blood, hemorrhage from both nostrils, frothy and stringy saliva in abundance from the mouth, and bellowing constantly; temperature 100°, pulse and respiration accelerated; passage of feces and urine suspended.

Diagnosis. Rabies, and advised destroying the animal, but owner insisted on keeping her until she died, as he had given a dose of oil before my attention, and during this manipulation, which was difficult, had gotten some of the saliva on his hands, which were covered with many scratches. He was very much frightened, but I tried to allay his fear, giving him a strong creolin solution with which to wash his hands, and cauterized the wounds with nitrate of silver and brought him to town to see a physician as a safeguard to himself. I telephoned the doctor, after my client left me at my office, the nature of the case, and told him to reassure the man, as I had done. With some saliva collected from the cow I inoculated a dog, and had a well-developed case of dumb rabies in twenty days.

Allow me to call your attention to a point worthy of our con-

sideration : As professional and honorable men, we should in similar cases endeavor to let our self-conceit and what aplomb we may gain from newspapers, their readers, and our clients be nothing in comparison to our consideration for the welfare of our client, whose mind and body might be influenced and affected with fear of this dread disease.

ASCITES AMNION. Jersey cow, four years old ; undersized. Had gone a month over time, according to the record of the owner, but nothing abnormal had been noticed. Was called at night to see her, as she had been "trying to calve for several hours." Found animal standing up, with an enormously distended abdomen ; distention seemed equal on both sides, giving the animal a peculiar appearance, her length being equal to her breadth. As the pains were infrequent and the os closed, and the animal comfortable, left her for the night. The next morning the pains were more frequent, but the animal's strength was not so good as the night before ; the cervix was still rigidly closed. Examination per rectum can outline a uterus enormously distended, but no fœtus detected. After great difficulty the cervix and os were opened somewhat, and the "bag of waters" filled opening at once ; giving myself and the animal a chance to rest a little, she lay down, and very strong labor-pains began, with no result ; examining the vagina again, find cavity of vagina nearly filled with membranes ; being unable to rupture the sac with my fingers, opened it with a bistoury, and was deluged with amniotic fluid. I think it a low estimate to say that a full barrel of fluid escaped. After the escape of this fluid the patient seemed very much exhausted, and was given a pint of whiskey and an ounce of aromatic spirits of ammonia. Examination brought on very feeble pains, but no fœtus could be detected. Allowed to rest again for an hour, and one-half ounce doses of fluid extract of ergot given every half hour, which brought on the contractions vigorously, the animal showing much uneasiness, getting up and down. This time felt a foot downward and backward above the udder, which was secured and given to an assistant, who, making traction, another leg was secured, and a dead fœtus, the size of a small rabbit, extracted. As the placenta was very adherent and the animal very weak, did not attempt to remove it ; left stimulants to be given every hour, and gave a grave prognosis. When seen again, twelve hours later, had just expired.

Post-mortem. Body very greatly emaciated, a most striking

contrast to her appearance when first seen; the membranes were thickened and very adherent to the cotyledons of the uterus, which was enlarged, with walls thin and flabby, with its fundus directed downward and backward. In this case, I must confess, that I diagnosed twins, and I can assure you that I was somewhat annoyed to show to the owner, instead of twins, a bit of a calf no larger than a small rabbit.

CLINICAL REPORTS—VETERINARY HOSPITAL, UNIVERSITY OF PENNSYLVANIA.

CLINIC OF S. J. J. HARGER, V.M.D.

CASE I. *Pruriginous erythema, a trophic sequel to plantar-neurectomy.*—Patient, bay gelding. Was purchased as sound for a high price. Last June showed slight lameness in the off forefoot.

I was called to treat the animal for an intense pruritis of the pastern, the animal constantly endeavoring to bite the parts. A previous neurectomy was suspected, and, after some difficulty, the cicatrices of the high-plantar operation were found; also small neuromas.

In order to relieve the lameness, the same operation was again performed. In about a month the itching of the pastern and coronet, which had disappeared after the operation, reappeared. The pruritis was excessive, and the patient constantly endeavored to bite the skin or rub it with the opposite foot, or against the manger, even leaving his feed to obtain relief in this manner. The skin became depilated over an area larger than a silver dollar, red (white foot), somewhat tumefied, and was covered with a moist, serous exudate; no vesicles or sloughing of the integument.

Treatment. The lesion was very obstinate to treatment. The animal had to be constantly "tied up" in the stall, and watched while eating. The skin was cleansed daily and sprinkled with an antiseptic mixture—iodoform, tannic acid, and charcoal. The diseased parts were protected from the frantic desire of the animal's biting by a leather ankle-boot extending to the hoof and covering the part. Two months were required for a recovery, and no trace of the trouble is left.

Remarks. This condition may follow median as well as high-plantar neurectomy; its seat is always the same. There may exist a number of these patches. They may assume an eczematous appearance, and may be scaly or covered with vesicles and pustules

partly due to traumatism by the animal. This trophic alteration is seen very rarely. In about fifty or, perhaps, more cases the writer has witnessed it only once, although he has seen a second case in the practice of a colleague.

Its principal characteristics are its infrequency, its obstinacy to treatment, and its being premonitory of a previous nerve resection. Its existence *always* demands a most scrutinous search for the *scars of a neurectomy*. It is not indicative of suppuration of the foot, but apparently always heals after a variable period.

CASE II. *Oöphorectomy in a mare*.—Patient a bay mare, driver, six years old. Sold a year before, on account of her disposition. Appetite poor, condition emaciated. The animal was constantly in heat, irritable, “switched” the tail and kicked, both when approached in the stall and when in harness; was unsafe as a driver, and practically unserviceable. Usual symptoms of nymphomania.

Oöphorectomy was performed last March, the animal standing, after administering an ounce of chloral, and after ten days at the hospital the patient was discharged. The ovaries were removed in the usual way through the vagina. Instead of the *écraseur*, the instrument devised by Dr. F. F. Hoffman, of Brookville, Pa., was used; instead of having a chain, this instrument has a movable rod with a cutting-hook at the free end. The pedicle of the ovary can be more easily secured than with the *écraseur*.

The left ovary was normal; the right was the seat of a cyst about as large as a walnut.

After the operation the mare for some time remained much emaciated, but gradually recovered; for about a week in a month she would menstruate and show some of her old habits in a mild form. These symptoms, however, gradually disappeared until they are not manifest in the stable or in harness, and the animal can be driven with safety.

CASE III. *Extirpation of the parotid gland*.—The patient was a gray gelding, sixteen years old. When purchased by the owner, a little over two years ago, there was a small tumor over the region of the left parotid gland. This growth continued to increase in volume until the entire area of the gland was involved. The animal at times showed symptoms of what the owner called “staggers;” one attack, in particular, occurred during early summer after a sudden change in the temperature to a few hot days, and continued for several days. It probably was passive congestion of the brain, from parotid compression of the jugular vein.

The owner concluded to have the animal placed under treatment, and, by the advice of Dr. H. D. Hackler, sent him to the hospital last May.

The animal was placed on the operating-table, and the entire removal of the gland was deemed necessary. A longitudinal incision involving the skin, the cuticularis colli, and the parotid auricularis muscles was made from the base of the ear to the lower extremity of the gland. Owing to the fact that the entire removal of the parotid gland has been seldom, if ever, accomplished, at least as far as I am aware of, and its close relationship with the jugular vein, which passes through the gland, the maxillo-muscular, posterior auricular, and the external carotid arteries, which lie on its deep face and supply it with large branches, and finally the seventh pair of cranial nerves, the motor nerve of the facial muscles, the utmost care was necessary in enucleating the gland and its tumor. The connective tissue was separated from the surface of the gland with the fingers, and when this was not possible the curved scissors was employed. The jugular vein, and the arterial branches were ligated as they were met. The hemorrhage was quite copious. The animal was somewhat emaciated, although he seemed none the worse from loss of blood after the operation. After the hemorrhage was arrested and the parts cleansed a perforated rubber drainage-tube, with the ends protruding from each commissure of the incision, was inserted and the lips of the wound united with interrupted sutures. The usual antiseptic treatment was given.

After the operation the lower lip on the left side was pendulous and the movements of the eyelids and the ear were much diminished, due to injury to the facial nerve. The wound granulated kindly, and the animal was discharged in fourteen days.

Present condition. At present writing there is no deformity of the parotid region, and no cicatrix apparent on casual observation. The movements of the eyelids and ear are normal; the lips are normal, excepting a slight deviation toward the right side; never any interference with prehension of food. The jugular vein, posterior to the gland, is not obliterated; this was prevented by the current of blood from the glosso-facial and occipital veins. General condition excellent and no unfavorable sequela. The tumor, as was suspected, proved to be a melanotic sarcoma.

The law prohibiting the importation of diseased cattle into Pennsylvania, with the proclamation, has just been issued by the board.

EDITORIAL.

A CONTEMPLATED BLOW AT OUR HORSE-INDUSTRY.

THE German Ambassador to this country corrects the report that his government is about to exclude American horses on the ground of their infection with influenza. He states that the Prussian Diet has directed an inquiry as to the possible dangers in the admission of these horses, and it would determine later the necessity for quarantine measures. We have no doubt that, as Germany has placed barriers against almost all our other leading export-products, our horses will come under the ban next. These conditions, incidental to the shipping of horses long journeys, are known in every horse-mart of the world, and are only of temporary moment, and we can only see the extension of the disposition to question American products. A little more inquiry as to German products sent to this country, and admitted without question, would do much to stop this offensive disposition toward the extension of American commerce, and the exclusion of any products that we can and do lead the world in producing.

LEADS VETERINARY JOURNALISM IN AMERICA.

OUR esteemed contemporary, the *Review*, seems much distressed over the cancellation of the JOURNAL's headlines on its monthly wrappers. For the enlightenment of our editorial colleagues, we would say that we found ourselves confronted by the possibility of having our monthly edition excluded from the mails as third-class matter with anything but the name and address upon our wrappers. And, from the many inquiries in the past when the JOURNAL was a day or two late in reaching its readers, we did not desire to be overwhelmed with inquiries and complaints from them. The JOURNAL still leads, and rejoices to see our contemporary following, in adding to its attractiveness in typographical character, better paper, our envelope-plan of wrapper, and its increased scope of news and information. The JOURNAL has added one additional triumph in placing itself on a cash subscription basis. We no longer desire to take any advantage of our readers by continuing the JOURNAL after the period paid for has elapsed, and then annoying our subscribers with dunning letters for their unpaid subscriptions, as well as unauthorized contin-

uance of the same. With the same support and aid of our contributors, we shall endeavor to continue to advance and enhance veterinary journalism in America.

STATE WORK WELL DONE.

THE excellent work done in veterinary sanitary work in Pennsylvania and Minnesota, under the direction of Veterinarians Pearson and Reynolds, teaches the value of skilled service in fields of this character. Both well adapted by education, training, and special natural ability for this work, the volume of work accomplished and the increased knowledge conveyed to all those engaged in animal industry, as well as the relations of the layman to this subject, and his indirect interest in its outcome and importance, have advanced in these States the appreciation of the value of this work ten years. Other States might well consider the great advantages to be derived by the selection of specially equipped men for such service, and thus insure safeguards to those engaged in animal husbandry representing a saving of millions of dollars annually, not to speak of the untold benefits to every man, woman and child in purer and better food-products and the great increase in the consumption of the same.

THE new dress and better paper of our esteemed contemporary, the *American Veterinary Review*, as it appears with the February number, add much to its attractiveness. Following in the lead of the JOURNAL, the *Review* is sent out in envelopes in place of wrappers, which makes it more presentable and better protects its edges and cover-pages than when wrapped up tightly.

SECRETARY WILSON is urging Congress for a special appropriation of \$100,000 to extend the meat-inspection service in order to fulfil the demands of Europe for our meat-products. He also urges an appropriation of \$100,000, to be expended in the serum-treatment of hog-cholera, and estimates the country's losses last year from this disease at \$100,000,000. Every veterinarian should lend his influence in aiding the Department of Agriculture in extending the work of inspection. How far the Government should do this inspection-work without a proportion of the cost being imposed upon those directly benefited is a serious problem, and whether the production of serum, after the experimental stage, for

gratuitous distribution to one class of people is the province of our Government is very doubtful indeed.

SAVANNAH, Ga., through its City Council, has just passed an ordinance providing for a special annual tax of thirty dollars a year on veterinary surgeons. We believe that this is the only city in the United States that imposes such an unjust tax or has taken a commercial view of what is recognized to-day all over our land as a profession. We would like to ask of the authorities of that city, Do you tax your dentists and physicians?

THE death of Dr. D. P. Frame, of Colorado Springs, is a keen loss to the profession of an honored member, an earnest worker, and one who was progressive in spirit and aggressive in labor. In the prime of life, and when his labors were yielding the most promising results, his sudden death reveals the uncertainty of life and teaches us how mysterious are the plans and workings of Divine Providence.

THE Missouri Experiment Station has added, by experimental trials, to the now generally accepted relation of value between broad-tired wagons and good roads. On macadamized street and gravel roads, dirt-roads in all conditions, except when soft or sloppy on the surface, underlaid by hard roadbed, or when the mud was very deep and sticky, the broad tires showed materially less draught, while the roads were improved and kept comparatively free from deep ruts. A six-inch tire was found to be the best for the road, meadows, pastures, stubble land, corn land and ploughed ground in every condition, from dry, hard and firm to very wet and soft. Better roads mean better horses, more driving, and a larger field of service for horses.

THE meeting of the Pennsylvania State Veterinary Medical Association at Philadelphia, on March 8th and 9th, will be an important gathering among the Keystone State veterinarians. The programme, with a varied series of attractions, will be full of interest to every active veterinarian. The committee reports promise to be of unusual interest; special features of operations and an illustrated lecture by Bacteriologist Ravenel, of the State Live-stock Sanitary Board. A dinner to attending veterinarians by Dr.

Leonard Pearson will be a pleasant feature. A midday luncheon to all visitors and members each day by the City of Brotherly Love veterinarians will add to the comfort and pleasure of all who may favor the Keystone convention with their presence and interest. A cordial and fraternal invitation is extended to veterinarians in our sister border States.

NECROLOGY.

CHARLES ERNEST CORNEVIN was born at Issen-Bassigny, France, in 1846, and died November 24, 1897. The deceased, after graduating from the Lyons Veterinary School, France, was elected assistant to M. Saint-Cyr, of the Lyons Faculty, who recognized his early ability while yet a student. He retired to general practice in 1868, edited the *Annales de Zootechnie et de Médecine Vétérinaire*, one of the first journals published outside of the veterinary schools. His early investigations pertained to questions belonging to zoötechny, and in 1876 he was elected to that chair in the Lyons Veterinary School, which he held at the time of his death. He was also professor in the School of Agriculture at Ecully, and was one of the editors of the *Journal de Médecine Vétérinaire et de Zootechnie*.

M. Cornevin's publications are numerous. Among his works published are the following: *Du Lemodex Canins*; *Le Charbon Symptomatique*; *Des Résidus Industriels dans l'Alimentation du Bétail*; *Production du Lait*; *Traité de l'Age des Animaux Domestiques d'Après les Dents et les Productions Epidermiques*; *Les Oiseaux de Basse-cour*; *Les Petits Mammifères de la Basse-cour et de Maison*; *Traité de Zootechnie Générale*; *Traité de Zootechnie Spéciale*.

The last two works stand above all others as general text-books. To the above list must be added numberless other articles printed in periodicals, especially on anthrax and symptomatic anthrax, on subjects pertaining to veterinary science, and particularly zoötechny. His writings are based on original investigations and upon observations made upon animals on the experimental farm owned by the Lyons school, and directed by the chair of zoötechny.

The deceased was a member of many professional and honorary societies, and was held in the highest respect by his colleagues and other associates. The veterinary profession, both in Europe and in America, where his writings are well known, sincerely regrets

the loss of one of its able members and most voluminous writers. He was truly one of those of whom the profession should have many more.

S. J. J. HARGER.

DAVID P. FRAME, M.D.C.

JUST as we are going to press with this issue the news reaches us of the sad and untimely death of our colleague, Dr. D. P. Frame, of Colorado Springs, Colorado. His death occurred at Kansas City, Kansas, just two days after his arrival there to accept the post of duty in the U. S. Meat-inspection Service, where he had been ordered to report for duty. Just previous to leaving Colorado he had been ill from Bright's disease, and the anxiety and extra labor in closing up his affairs and the removal of his family were followed by bronchial pneumonia and death on February 25th.

Dr. Frame was a genial, earnest, and progressive worker in the profession; a member of the U. S. V. M. A.; active in the work of his State Association, and in agitating the need of legislation in the "Boulder State." He had won the position of Food Inspector in the city where he lived, and was in close touch with all veterinary sanitary measures and board of health movements for his people.

He received his degree from the Chicago Veterinary College in 1894. Several years were spent in his education in special study and laboratory work, and he was well equipped in the work of food inspection.

The Order of Elks, of which he was a member, took charge of the funeral ceremonies, on the 28th, at Kansas City.

MARRIED.

On Thursday, January 27th, at Colorado Springs, Col., Dr. John Greer, V.S., and Miss Nina Pearle MacArthur.

REVIEW.

THE PREVALENCE, CAUSE, AND TREATMENT OF BOVINE ABORTION, MILK-FEVER, AND GARGET. By JULIUS NELSON, Biologist. November 30, 1897. Bulletin No. 127, New Jersey Agricultural Experiment Stations.

NEW JERSEY is entitled to the credit for a great discovery. It has been supposed for a number of years that our immense agricultural and live-stock interests require experiment stations, where experts could be employed to make thorough studies of various

subjects connected with these interests, so that farmers might be placed in a position to avoid injurious influences, to encourage favorable influences, to adopt new methods from time to time, and thus receive a greater reward for their labors. Acting upon this assumption, the Congress of the United States has appropriated enormous sums for the establishment and maintenance of at least one such station in every State, and experts of various kinds have been employed to conduct experiments and publish their reports, all for the good of the struggling farmer. Some, indeed, have gone so far as to maintain that this work has already produced good results, and that it should not only be continued, but that it should be enlarged and strengthened.

Some recent publications, however, have shown that these generally accepted views are wrong; that such experiment stations are not necessary, and that the work that they are doing can be accomplished at much less expense, permitting a saving of several hundred thousand dollars each year. Fields, farms, laboratories are all unnecessary; the money spent for special buildings and equipments, especially in the veterinary divisions of experimental work, has been wasted. If we may judge the work of these stations by publications similar to the one whose title appears above, it were better to sell to the highest bidder the various experiment-station equipments of the country, invest the proceeds in Government bonds, rent a few rooms in some convenient office-building near a large library, employ a few bright young men to collate facts that have been recorded, to interview farmers by mail, arrange articles on various subjects relating to agriculture, and publish these results in bulletin-form and distribute them after the manner of a free newspaper. It is not necessary that such employes should have any great amount of knowledge of the subject that they write about. They are supposed to consult the writings of experts, and original views will, therefore, be unnecessary.

There is very little to say about this bulletin except that it collates a number of facts in reference to these diseases that have frequently appeared in text-books and in the journals of the profession. Although the title might lead one to think that abortion, milk-fever, and garget were all produced by the same cause, and yield to the same treatment, this deduction is not borne out by an examination of the text. Prof. Bang's work on the *Etiology of Abortion* has been generously drawn upon, and his deductions are quoted, in the language of the author of the bulletin, at considerable length.

Among the original plans of treatment, it is mentioned that a teaspoonful of sulphur was given once each week to every cow in the herd; but apparently this did not prevent the occurrence of abortion.

The internal treatment for garget is interesting. It consists, if the cow has fever, in administering one ounce of saltpetre and fifteen drops of aconite in one pint of water every four hours. "A wet-pack may be indicated in rare instances, but it should always be used with great care." How many farmers know what a wet-pack is, what rare instances require it, or what care should be observed in its use? Although five kinds of garget are mentioned, all of which require entirely different treatment, the herdsman is not informed how to distinguish the different varieties, or what treatment each requires. Tubercular garget is mentioned by name only; nothing is said as to its symptoms, nor is attention called to the extreme danger accompanying the use of milk in these cases. In connection with the treatment of garget, we note the following: "After all the milk is drawn a 1 per cent. creolin solution, or 1:1000 corrosive sublimate solution, may be injected into the teat and forced up until the gland has received all that it will receive. Then milk out"! We hope that this treatment will not come into general use in New Jersey.

As to the treatment of milk-fever, it is rightly stated that "an ounce of prevention is worth forty pounds of effort to cure," although it is further stated that seventeen cow-owners have recorded their methods of treatment, which have proved eminently successful. "Should the owner fear that his method has not succeeded in reducing the blood sufficiently, as may happen when the time is too short, a veterinarian should be called to let out several quarts of blood from the jugular vein of the neck (*sic*)."

This advice is very good, and will tend to greatly lessen the trials of the New Jersey veterinarians, because instead of having the responsibility of cases of milk-fever upon their own shoulders, it will only be necessary for them, hereafter, to carry out the plan of treatment directed by the farmer. "Neither carbolic acid nor corrosive sublimate nor iodoform can be recommended for disinfecting the genital passages, but these disinfectants and others may be used liberally upon the soiled bedding, barn-floor, etc." Would not a few pounds of iodoform make an admirable stable disinfectant? "If the cow is down, she should be propped up on the brisket to prevent the running of food into the lungs from the stomach"! Further comment is unnecessary.

CONTROL WORK.

TO PROVIDE FOR THE SUPPRESSION OF DISEASE AMONG ANIMALS IN THE HAWAIIAN ISLANDS.

SECTION 1. The Minister of the Interior is hereby authorized and directed to establish, on each of the islands of the Kingdom having ports of entry, a quarantine station or stations for animals.

SEC. 2. The Minister of the Interior is hereby authorized to appoint three competent persons for each port of entry of the Kingdom, who shall be designated "Board of Inspectors of Animals," and from time to time, when such offices, for any reason, shall become vacant, to reappoint competent persons to fill the same. One of the three appointed on each Board shall be designated as the Executive Inspector. Such officers, for the purposes of this Act, shall possess all the powers, rights, privileges, and immunities of customs officers, or officers acting under the Board of Health, and it shall be their duty to cause the various quarantine stations to be kept clean and properly fitted for use.

SEC. 3. The master of any vessel on which there shall have been shipped live animals for any port in this Kingdom shall, immediately upon arrival, notify the customs officers of such fact, and said officers shall at once cause the inspecting officers to be notified, and shall not permit the animals to be taken from the wharf or landing, nor any portion of the food or water, nor any effects connected therewith or provided for their use during the voyage, to be removed from the wharf or landing until the inspecting officer shall have inspected and passed the same.

SEC. 4. All live animals, except such birds and small animals as shall be specially exempted by the inspecting officer, shall be subject, on arrival in this Kingdom from any foreign port or country, to be quarantined at the expense of the owner or consignee thereof, in such places as shall be appointed by the Minister of the Interior, for a period of not less than thirty days, and for such longer period as shall be deemed necessary by the Board of Inspectors, on account of the presence of any contagious disease or distemper, or because the port or country whence such animals are brought is affected with such disease or distemper, or for any other good and sufficient reason having reference to the public good. Whenever, after careful examination and attention, the inspecting officer shall find that such animal or animals are infected with any

disease or distemper of a nature dangerous to the live-stock of the country, he shall report the same to the Board of Inspectors, and if the majority of the Board of Inspectors shall decide that the public interests require, they shall cause such animal to be utterly destroyed ; said Board of Inspectors may also cause all the food and other effects connected with such animals, independently of the animals themselves, to be destroyed.

SEC. 5. Live animals passing between the different islands of the Kingdom may be quarantined, as set forth in Section 3, either at the port of shipment or delivery, on good cause shown to the inspecting officer of the port of entry nearest to the port of shipment or delivery.

SEC. 6. The Minister of the Interior, notwithstanding anything in this Act, may, from time to time, by proclamation declaring any port or country to be infected, absolutely prohibit the introduction of any animals therefrom until the restriction be removed.

SEC. 7. All imported animals, fodder, fittings, or effects landed contrary to the provisions of this Act, or taken or removed from quarantine until duly discharged, shall be forfeited to the use of the Hawaiian Government ; and all animals brought into such quarantine grounds, or placed with any animals under quarantine, shall be deemed to come under the provisions hereof, and shall be subject to all the conditions of the same.

SEC 7 *a*. It shall be the duty of every person to report immediately to the nearest Executive Inspector or inspecting officer any animal on or about his own premises, or the premises of another, which he shall have reason to believe to be affected with any infectious or contagious disease or distemper, under a penalty of not less than five nor more than one hundred dollars for each offence.

SEC. 7 *b*. Said inspecting officer shall have the power to enter upon any premises where they have reason to believe there is any animal affected with any infectious or contagious disease or distemper of a nature dangerous to the live-stock of the country, and to cause any such animal to be placed in quarantine for such time as said officer may deem necessary ; and shall have the power, with the approval of the majority of said Board, to cause any such animal to be destroyed.

SEC. 8. Any and all persons knowingly and wilfully violating any of the provisions of this Act, or assisting in so doing, or who shall purchase, take, or carry away any animals, fodder, effects or fittings connected therewith, before the same shall have

been discharged by the inspecting officer to perform his duty, then such person or persons shall be liable to imprisonment at hard labor for any period not over six months or to a fine not over five hundred dollars, or both; and all such offenses may be tried before any police or district magistrate.

SEC. 9. There shall be collected from the owner or consignee of animals inspected under this Act one dollar per head for all horses, mules, and cattle; fifty cents per head for all sheep and goats; ten cents each for every other animal or bird; and when, from the nature of the case, the making of such inspection shall be unusually onerous or severe, 25 per cent. additional shall be paid to the inspector.

“All fees collected shall belong to the officer making the inspection, and shall be full compensation for his services for such inspection.”

SEC. 9 *a*. The several executive inspecting officers of the Kingdom shall keep regular records of the proceedings of their respective Boards, and shall semi-annually make a full and detailed report of their transactions, including an account of their receipts and expenses, to the Minister of the Interior, who shall lay the same before the Legislature.

SEC. 9 *b*. All reasonable expenses incurred in placing any diseased animals in quarantine, and of feeding and caring for the same, including medical treatment while in quarantine, shall be paid by the owner or consignee of such animals.

Any executive inspector appointed under this Act may sue in his own name, or the majority of any of said Boards may sue in the name of such Board any such owner or consignee who shall refuse or neglect to pay the fees or expenses mentioned in this Act; or may in his or their discretion hold any animal for which the fees and expenses have not been paid after demand, and after five days' public notice sell the same at public auction (provided such animal be not affected with any infectious or contagious disease or distemper), and from the proceeds of such sale the executive inspector or majority of such Board may retain a sufficient amount to cover the fees and all expenses incurred, and the balance pay over to the owner or consignee of the animal thus sold.

SEC. 10. The Minister of Interior shall, from time to time, make and publish such rules and regulations as shall be necessary for the more efficient carrying into effect the provisions of this Act.

Regulation of the Board of Health in Regard to Tuberculosis in Neat-cattle.

SECTION 1. The presence of tuberculosis in any animal, the flesh of which is likely to be used as food or from which milk is obtained for use or sale, is hereby declared to be a cause of sickness and a menace to public health and safety.

SEC. 2. All persons who shall have in their possession any neat-stock shall, when requested to do so by an inspector of the Board of Health, permit such animal to be examined for the purpose of determining whether or not it is affected with tuberculosis, and allow all necessary experiments or operations to be made or performed for such purpose.

SEC. 3. A suitable number of inspectors of the Board of Health, for the purpose of examining all neat-stock suspected of being infected with tuberculosis may be appointed by the President of the Board when so authorized by the Board.

SEC. 4. It shall be the duty of such inspectors to examine all stock suspected of being infected with tuberculosis, and to make such experiments or perform such operations as may be necessary to determine whether or not the animal is so infected.

SEC. 5. All animals which shall show symptoms of tuberculosis shall be condemned by such inspector, and destroyed ; and no part of the carcass of such animal shall be used for food or disposed of in any other manner likely to endanger public health.

SEC. 6. In any case of doubt the inspector shall forbid the further use or sale of the milk of said animal, and shall cause it to be kept separate from other non-infected animals ; and, before condemning such animal, shall summon for consultation with him one or more of his fellow inspectors, and their decision in the case shall be final.

SEC. 7. The several inspectors of animals shall keep a record of all animals inspected by them, and their decision regarding the same, and shall make weekly reports of their doings to the Board of Health.

SEC. 8. Said inspectors of animals shall receive such pay as shall be voted by the Board of Health.

SEC. 9. These regulations shall take effect from and after the 15th day of April, A. D., 1897.

MILK.—Fee.

SECTION 80. The annual fee for a license to sell milk in the District of Honolulu shall be twenty-five dollars ; for the town of

Hilo, which, for the purposes of this Act, shall be limited to a circle the radius of which shall be two miles from the Court House, shall be fifteen dollars; and for all other districts, five dollars.

Penalty for adulteration, etc.

SECTION 81. Any person who shall sell, or offer for sale, any milk which has been adulterated by the addition of water or other substance, or from which the cream has been skimmed or separated, unless the same is specifically and openly stated to be skimmed milk, shall be fined not more than fifty dollars.

Inspection and confiscation.

SECTION 82. Any police officer or agent of the Board of Health shall have power to inspect and test any milk sold, or offered for sale, and to confiscate any adulterated milk which he may find.

Miscellaneous.

Any bad or badly-cured meat, or any substance which is emitting a noxious, deleterious effluvium, must be immediately removed at the expense of the owner from the premises where it is stored, notice having first been given by the Board of Health or its agent.

No person shall keep swine in the city of Honolulu within one mile of the Post-office.

No person shall throw dead animals on any of the public streets or highways within one mile of the Post-office.

No slaughter-house will be allowed in the city of Honolulu within one mile of the Post-office, or on any of the public highways leading to the city, or on the banks of any river or stream the water of which is used for drinking or domestic purposes, or in any situation not first approved by the Board of Health or its authorized agent. (Section 285, Comp. Laws.)

No person will be allowed to dry or salt hides or skins or to store the same within the boundaries of the city of Honolulu, or in any place adjacent to or to windward of the city, or in any place not first approved by the Board of Health or its authorized agents.

Slaughter-houses.

No slaughter-house shall be maintained in any part of this Kingdom, or in any place where the Board of Health shall now or hereafter forbid the maintenance of the same.

TO REGULATE THE PRACTICE OF DENTISTRY IN THE
HAWAIIAN KINGDOM.

From and after the passage of this Act it shall be unlawful for any person or persons to practice dentistry in the Hawaiian Kingdom except upon a certificate issued from the Board of Dental Examiners.

License is required.

No person shall practice medicine or surgery as a profession in the Hawaiian Islands, either gratuitously or for pay, or shall offer to so practice, or shall advertise or announce himself, either publicly or privately, as prepared or qualified to so practice, without having first obtained from the Minister of the Interior, under seal of his department, a license in form and manner substantially as hereinafter set forth. Such license shall only be granted upon the written recommendations of the Board of Health.

REPORT OF THE VETERINARY DEPARTMENT OF THE MIN-
NESOTA STATE BOARD OF HEALTH FOR QUARTER
AND YEAR ENDING JANUARY 1, 1898.

MR. PRESIDENT AND GENTLEMEN OF THE BOARD: I take pleasure in presenting the following report of work done in the veterinary department during the quarter and year ending January 1, 1898.

The work during the entire year has been largely with glanders and hog-cholera, although there have been scattered outbreaks of other diseases, especially tuberculosis, black-leg, rabies, and corn-stalk-disease among cattle. The latter has been unusually prevalent during this season, and is now reported, I believe, for the first time, to this board.

HOG-CHOLERA.

Methods adopted during the present season. I believe that the most-lasting and important benefit that will result from our hog-cholera work of 1897 will be the good that came from the campaign of education. I refer to the printed matter which has been distributed freely throughout the State; to the assistance given us by the local newspapers, and to the work of Secretary Bracken, who has met a large number of farmers and local health officers at various public meetings throughout the infected portion of the

State. Mr. Kenning has done similar work in Renville and McLeod Counties. In addition to the printed matter and newspaper work, I have been able, by the courtesy of Superintendent Gregg, to present the subject of hog-cholera to many large audiences of farmers.

I have felt throughout the season that in thus getting the owners and local health-officers, including town-boards, ready for next season's work something material was being accomplished, although the work this year has not been as satisfactory as we hoped at the beginning it might be. We have endeavored to treat hog-cholera just as the sanitarian in the field of human medicine deals with smallpox or yellow-fever—*i. e.*, by individual and local quarantine.

The following stock letter (*d*) and circular of instruction concerning hog-cholera illustrate the instruction which local health-officers have received for their work.

At a previous meeting of the Board, on August 10th, a series of rules were adopted for the control of hog-cholera in Minnesota, and put in force August 20th. These rules divided the State into two districts, A and B; A being declared a generally infected district, and certain quarantine regulations were established to control the traffic within each district, from one district to the other, and from other States into these districts. A copy of these rules is attached hereto.

(d) Rules for Controlling Hog-cholera in Minnesota.

These rules do not interfere with any shipments of swine, for slaughter, into any stock-yards of the State that may be located within district "A," and these rules are so framed that the large markets of the State are located within district "A."

1. The following counties were more or less generally infected with hog-cholera during 1896, and 1897 up to date, and are hereby declared an infected district, and designated as district "A." Counties: Brown, Watonwan, Martin, Freeborn, Faribault, Blue Earth, Nicollet, Le Sueur, Waseca, Hennepin, and Ramsey, excepting the State fair-grounds. This district is subject to such modifications as the State Board of Health may see fit to make from time to time.

2. All that portion of the State not included in district "A" shall be known as district "B."

3. Shipment of swine from any point in district "A" to be unloaded in district "B," and all other movements of swine, whether they are driven on foot or hauled in wagons, from any point in district "A" into district "B," are hereby prohibited.

4. All shipments from points outside of this State, to be unloaded within this State, are prohibited, except as provided in rule 5.

5. Hogs shipped from any other State into Minnesota must be crated, shipped in other than stock-cars, and accompanied by a certificate signed by

a veterinarian or physician that they are free from the disease when shipped and come from an uninfected district.

6. Hogs shipped from point to point in district "B" must be crated and shipped in other than stock-cars.

7. All outbreaks of suspected hog-cholera in district "B" and in such places as may be deemed practical in district "A" shall be rigidly quarantined.

8. Shippers of hogs from point to point in district "A" shall be required by the railroad agent to sign a statement to the effect that such hogs are for slaughter only and within five days after reaching destination.

Railroad agents should preserve all certificates demanded by these rules for the protection of their companies in case any shipment of hogs should be followed by an outbreak of disease.

9. All exhibitions of swine at county fairs in district "A" are hereby forbidden.

10. All cars in which hogs are shipped into or through this State shall be constructed so as to prevent the escape of manure and litter.

These rules shall go into effect August 20, 1897, and continue in force until altered or annulled by the State Board of Health.

"Any person violating any rule or regulation made by the State Board of Health, or any order made by such board under the authority hereof, shall be guilty of a misdemeanor and be punished by a fine of not less than twenty-five (25) or more than one hundred (100) dollars, or by imprisonment for not less than thirty (30) or more than ninety (90) days. Complaints for violating the provisions of this act, or for violating any rule or regulation made by any board of health under its authority, may be made by any member or authorized agent of any such board, or by any citizen of this State."—From Section 9, Chapter 233, Laws of 1897.

H. M. BRACKEN, M.D.,
Secretary and Executive Officer.

Quarantine line. In pursuance of a suggestion offered by Hon. John Cooper, of St. Cloud, we have attempted to establish a quarantine-line across the State on a line with McLeod and Renville Counties, this being north of the generally infected district. Mr. Kenning has recently completed a second trip over these two counties for the purpose of estimating the results of his first trip. It is evident that we can accomplish considerable good in that way.

Government experiment in Iowa. As you are doubtless aware, the Government has been carrying on an interesting experiment in Page County, Iowa, the results of which may be of considerable value, and may possibly modify our method in this State. The Government has been trying the experiment in that county of controlling hog-cholera by purchase and slaughter of infected herds and by serum-vaccination. The results have not been published as yet. I am awaiting this report with great interest.

General estimate of results. A careful study of the work that has been in operation during the past season, as shown by our

statistics and partially illustrated by the map which I show to-day, are somewhat disappointing, and yet I feel that we have accomplished something for Minnesota stock-interests. I see now that at the beginning of the work in 1897 I hoped for far more than was possible. In view of the fact that when the work was undertaken at least thirty-nine counties were affected, the present situation is not discouraging. (Maps shown and explained.)

In order to study our results fairly, we must divide the State into two districts :

1. In previously and badly affected districts our results were unsatisfactory ; but we have been able, among other things, to render less rapid the spread of disease, as shown by the list of townships and counties affected, and this is also true of the territory immediately bordering on the generally infected district. This district includes the following counties : Rock, Nobles, Jackson, Martin, Faribault, Freeborn, Fillmore, Waseca, Blue Earth, Watonwan, Cottonwood, Murray, Nicollet, Le Sueur, and McLeod.

2. In portions of the State that were infected during 1897 for the first time our efforts have been much more satisfactory. In many cases the disease did not spread beyond the township in which it first appeared. There are forty townships, indicated by the large red spots on this map, which were infected at some time between January 1st and November 1st, but the disease had entirely disappeared before November 1st. So far as I have been able to obtain reports from the chairman of the various townships, there have been but two townships in seven counties infected since November 1st, for the first time.

The total number of counties infected in 1896 were thirty-nine ; total number counties infected in 1897 were thirty-nine ; number new counties infected in 1897, nine ; number infected in 1896, but not in 1897, nine. In comparing these figures we must bear in mind that we have very accurate reports both for townships and counties, location of outbreaks, financial losses, etc., for 1897, and inaccurate reports for 1896. It is quite probable that if we could have collected information in the same way in 1896, that the number of counties and total loss for 1896 would have been much larger. In the map shown the blue crosses indicate the counties infected in 1896.

Experiments with hog-cholera serum. I have been disappointed with the results of our hog-cholera serum experiments. The beginning of this experiment and the early portion of our work was reported at a previous meeting of the board. As you will remem-

ber, I announced at that time that I had made arrangements with Dr. A. T. Peters, of the Nebraska Experiment Station, to unite in our work, so far as this matter was concerned, during the present season. Dr. Peters was to do the laboratory work and furnish the serum, and the veterinary department of the State Board of Health, in connection with the veterinary division of the Experiment Station, to plan and execute the field experiments. Our plan for field experiments was as follows:

Plan for Field Experiments with Serum in Outbreaks of Hog-cholera.

1. Protection: *a.* Original prevention, that is, of swine that have not been exposed. Select a small herd of well animals that, so far as known, have never been exposed to the infection, and inoculate one-half of them. After ten days send out inoculated pigs with others that have not been inoculated for controls, to be placed in herds where the disease is present.

b. Exposed and possibly already infected swine. Select a herd in which undoubted hog-cholera has appeared, and in which the entire herd has been exposed to infection; inoculate one-half of the herd, using a separate earmark for those that were sick and those that were well when inoculated, and keep complete records. (Odd numbers "inoculated;" even numbers "not inoculated." In right ear for "sick," and left ear for "well." Keep careful records of number and ear of those that die.)

2. Experiments as to curative value: Carefully kept records of hogs that were sick when inoculated, when compared with the records of other sick hogs that were not inoculated, will give a very fair estimate of the therapeutic value of the serum.

Doses: 10 to 50 lbs., 2.5 c.c.; 50 to 100 lbs., 5 c.c.; 100 to 200 lbs., 10 c.c. 10 c.c. of three days' old culture hog-cholera bacilli to be added to each 100 c.c. of serum, then well stirred.

Results. Our results, briefly summarized, are as follows:

Under the heading of "Original Prevention," the Experiment Station purchased ten shoats, weighing about seventy-five pounds each. We vaccinated half of them, and all were given metal ear-tags according to a system of ear-tagging. After ten days these shoats were sent out in pairs, one vaccinated with one control, and exposed in pens and small yards to undoubted hog-cholera. One pair was sent to each of the following places: New Ulm, Bird Island, Sauk Centre, Owatonna, and Willmar.

The results of this experiment demonstrated that the vaccinated pigs had developed no immunity, as nine of the pigs have died, and in many cases the vaccinated one died sooner than the other.

In our experiment with "exposed and possibly already infected swine," a total number of 236 hogs were used on twelve different farms and in different portions of the State. Of 119 vaccinated hogs, 32 died; of 117 not vaccinated, 27 died.

It should be explained that this was probably not a fair test of Dr. Peters' serum, because of unfavorable conditions of shipment and pure culture inoculation of the serum.

While our results have been very unsatisfactory they have not been discouraging, and I hope to continue the work under more favorable conditions during 1898, and if necessary for many years to come. I am satisfied that a most important factor in the solution of the hog-cholera problem lies within this matter of a vaccine that shall be preventive and possibly curative.

I wish to submit the following proposed circulars of information concerning hog-cholera. Many of the most important points in these hog-cholera circulars were suggested by Dr. Bracken.

Circular of Information for Local Health-Officer—For Quarantining Hogs Suffering from any Suspicious Disease.

The purpose of the Board of Health in quarantining any suspicious disease among hogs is to protect the financial interests of the hog-raisers. The proper quarantine of hogs imposes no hardship upon either the owner or the hogs themselves. Valuable time is often wasted before quarantine is established, and this permits serious spread of the disease to take place, making its control much more difficult.

In all cases where hogs begin to sicken and die during the prevalence of hog-cholera the disease should be reported to the local health-officer or chairman of the Town Board. Quarantine should be established at once, for it is a simple matter to release quarantine, and should it be proved that the disease is not hog-cholera or swine-plague, no harm has been done by such quarantine. All health-officers and acting health-officers are therefore instructed to see that all suspicious outbreaks of disease among hogs are properly quarantined.

The first step in quarantining a herd of hogs has been accomplished when the proper placard has been dated and signed by the proper officer and posted in a conspicuous place upon or near the yards, pens, or sheds in which the hogs are confined. The health-officer should then explain to the owner or keeper the nature and conditions of quarantine, and thereafter see that the conditions are rigidly enforced until quarantine is released.

Farmers should not only be permitted, but urged to dispose of marketable hogs for slaughter as soon as suspected hog-cholera appears in a neighborhood. Hogs from an infected neighborhood may be shipped for slaughter to any place where inspection is con-

ducted by Government, State, or local health-officers, except as otherwise provided by the State Board of Health.

It is sometimes advisable at the beginning of an outbreak to kill and bury, or burn, the hogs as fast as they show the first suspicious symptoms of the disease.

If hogs are confined in small pens or yards after the disease has appeared, such pens or yards should be kept as clean as possible by removing the manure frequently and keeping it in a compact pile, making alternate layers of manure and lime, for the manure is very infectious.

The troughs should be scalded once daily with boiling water. Little bedding should be allowed, and that should be frequently removed and burned. The floors may be disinfected by a 2 per cent. solution of crude carbolic acid in water; lime should be sprinkled freely over the yard.

If swill-barrel or tank is used, it should be emptied twice a week, and scalded with boiling water, and then exposed to the sun until thoroughly dry.

If the pens or small yards can be kept thoroughly clean, as herein suggested, it is better to keep the hogs in such places than in the larger pastures and yards; otherwise it is better to give them a larger range.

The disease now prevailing in different portions of the State varies in symptoms in different localities and in different herds. It may be set down as a rule, however, that when any infectious (catching) disease appears among swine it is probably hog-cholera, modified more or less in symptoms by certain well-known complications.

Circular of Information for Shipment of Hogs from an Infected District.

The local health-officer must insist, whenever it is practicable, that hogs which are removed from an infected farm before the quarantine card is posted, must be hauled in wagons and loaded directly from them into the cars.

Racks and wagon-boxes used for hauling such hogs must be tight, and so constructed at the bottom as to prevent the scattering of manure and litter along the highway.

Racks or wagon-boxes which have been used for transporting such hogs must be thoroughly disinfected as soon as the work is finished. All parts of the wagon that have come in contact with the hogs or litter must be thoroughly saturated with the disinfect-

ing fluid. Two per cent. solution of crude carbolic acid in water is cheap and effective.

Neighbors on whose farms the disease has not yet appeared should never be allowed to help haul the hogs from an infected farm, as there is always great danger that the disease will be spread from farm to farm by such action.

In response to a suggestion at the last meeting, we have issued the following circular on "So-called Hog-cholera Cures."

This has been sent to nearly all the papers in the infected portion of the State, and sent out freely to chairmen of town boards and other local health-officers. This has brought us into some conflict with hog-cholera-cure firms, but no serious trouble.

Concerning so-called Hog-cholera Cures.

At a meeting of the State Board of Health, October 12, 1897, it was decided that the veterinary department should issue a circular of advice to farmers and stockmen concerning the many so-called cures for hog-cholera and the men who are going over the State selling them. These men are teaching that the disease is not contagious, and that it can be cured by their special preparation, that all other medicines are useless, etc. Some are even teaching the silly doctrine that hog-cholera and swine-plague are caused by certain methods or systems of feeding.

Hog-cholera has been proved infectious by many different men and by many careful experiments. Practical experience supports these scientific experiments, and so it is difficult to understand how anyone who has had experience with the disease can think otherwise than that it is infectious.

The hog-cholera-cure agents are themselves a constant source of danger, as they go from farm to farm. Owners and local health-officers should not allow them to go near the hogs upon any farm where the disease has not appeared, and they violate the law when they go into pens or yards where hogs have been quarantined by local or State Board of Health.

From the very nature of the disease it seems impossible for drugs or patent medicines of any kind to have any curative value, and money paid for drugs or chemicals to be used as cures is therefore wasted. Such drugs as crude carbolic acid, corrosive sublimate, creolin, lime, etc., have value of disinfectants only.

It is unfortunate that farmers should believe in these so-called cures, for, as a consequence, they usually grow very careless about matters of quarantine and protection from infection.

Editors will do a good thing for their farmer-readers if they repeatedly urge them to spend no money for any hog-cholera cures.

Mr. John Cownie, Vice-President of the State Agricultural Society of Iowa, has recently superintended a test of one of the most prominent of these hog-cholera cures, and his conclusions, as published at length in Wallace's *Farmer and Dairyman*, of October 15th, are as follows: "So far the disease which is now destroying the swine herds of our State has baffled all efforts to cure or even to control it, and each and every one of the so-called 'hog-cholera cures' now on the market have proved, when put to a

fair and honest test in a herd really affected by the disease, to be without merit and absolutely worthless as a cure for this dread complaint." Henry Wallace, well-known all over the West as one of the most prominent agricultural editors, followed this experiment closely from beginning to end, and certifies to the correctness of Mr. Cownie's statement.

The only prospect now in sight for the cure or medical prevention of this disease seems to lie in the way of blood-serum or antitoxin. We hope it will not be many years before some vaccine will be discovered which will be as sure a preventive of hog-cholera as vaccination is for smallpox, or as good a treatment as antitoxin for diphtheria; but these things are all in the experimental stage as yet, and it may be a long time before any can be positively recommended. Meanwhile the farmers of Minnesota should not add to their losses by spending money for worthless hog-cholera medicines. They should, however, do everything in their power to prevent the spread of the disease by excluding the common carriers of infection from their herds of hogs.

M. H. REYNOLDS, M.D., V.M.,

Director of the Veterinary Department of the State Board of Health.

Newspapers. I think that this board should recognize in some public way the generous assistance that has been given us by the newspapers of the State. They have printed very freely the large amount of matter which has been sent them concerning hog-cholera, and in this way have benefited their farmer-readers and greatly assisted us in the work.

Plans for 1898. I am anxious to learn the results of the Government experiment in Page County, Iowa, before submitting definite plans for dealing with hog-cholera in 1898, and had hoped to receive a full report before this report was submitted.

It will evidently be necessary to alter the rules for the control of hog-cholera in Minnesota as adopted by this Board on August 10, 1897. The rules must be materially modified, certain ones abolished, new ones added, and others modified. I would suggest that this matter be referred to the Committee on Infectious Diseases of Animals and the Executive Committee, with power to act jointly.

I wish to continue my work with preventive and possibly curative vaccination, as suggested elsewhere in this report.

(To be continued.)

A NEW ANTISEPTIC. A new German antiseptic, called protagol, is a compound of silver and protein. A 1 per cent. solution is reported to destroy the bacteria of anthrax and enteric fever.

SOCIETY PROCEEDINGS.

CHICAGO VETERINARY SOCIETY.

The regular monthly meeting was held on February 10, 1898. Meeting called to order by Dr. R. G. Walker, President, twenty-one members being present.

Under "Remarks by the President," Dr. Walker said that he was greatly surprised at the result of the vote cast as to the retention or expulsion of Drs. B. A. Pierce and W. E. McGraw, assistants to a non-graduate State Veterinarian; that had the vote been a tie the President would have most certainly voted for expulsion. That the retention of these members was antagonistic to all previous sentiments shown by the Society; that under new business a motion for reconsideration of the vote would be in order, the same to be voted upon at the next regular meeting if the vote for reconsideration was carried.

The President next presented a letter from the Secretary, Dr. James Henderson, resigning from the Society, as he intended leaving America to accept a desirable position in Scotland. It was moved and seconded that a committee of five members be appointed by the President to draft resolutions of thanks to Dr. Henderson for his efforts and work in the behalf of the Society, and regrets at his necessary resignation; carried.

The nominations for Secretary being in order, it was moved and seconded that Dr. Campbell be elected to the office, as his departure from Chicago had been postponed; voted and carried.

The committee appointed to draft the resolutions of thanks to Dr. Henderson were Drs. Hughes, Robertson, E. L. Quitman, Ryan, Baker.

There was no report from the Secretary or the Treasurer.

Regular programme, "A Guide to the Veterinarian in Examination for Soundness." The programme was opened by Dr. Worms on "Salivary Fistulæ, Salivary Calculi, Nasal Polypi, or Obstructions, Nasal Cysts, Nasal Catarrh, Partial Amputation of the Tongue, and Lolling and Paralysis of the Same." The paper was an extremely interesting one, and one to which the Doctor had evidently given great care and thought. The discussion was brisk and interesting, nearly all present taking part. Moved and seconded to close the discussion. Dr. Robertson next read his paper on "Osteoporosis, Enlarged Superior and Inferior Maxillary Bones, and Fractures Interfering with the Function of Same, Paralysis of the Lips, and Torn Commissure." The Doctor also mentioned facial expression and the general expression of the head, which would show the mental endowment of the animal as to vice, etc. A sharp discussion was occasioned by this excellent paper. On motion, the discussion was closed.

The next order of business being new business, it was moved by Dr. Nelson, seconded by Dr. Ryan, that a reconsideration of the vote taken at the last meeting in regard to the expulsion of Drs. Pierce and McGraw be had. A standing vote being taken, on count it was ascertained that eleven members desired reconsideration, while five did not. The vote being two-thirds affirmative, a new vote on expulsion will be held at the next regular

monthly meeting. Owing to a spirited discussion as to members voting who had not paid their dues, it was ruled by the President that a delinquent member could not vote. Motion for appeal was taken to this ruling by Dr. E. L. Quitman, seconded by Dr. Dubia; voted and carried. The President stated that in making this ruling he was only living up to the by-laws of the Society as appears in Article IV, Sections 1 and 3, and that the appeal taken was not from the President, but from the Society's own by-laws; that unless these by-laws were lived up to and enforced by the members, he should tender his resignation. This was followed by a withdrawal of the motion by Dr. Quitman, with the hope that the seconder would also withdraw his second to the motion, which was not done. On motion, adjournment.

L. CAMPBELL, D.V.S.,
Vice-President and Secretary.

Dr. James Robertson's Paper.

OBSERVATIONS ON THE FACE IN EXAMINATION FOR SOUNDNESS. As the horse is gifted with the power to think, to reason about things and objects of his own sphere, to recognize facts of his experience and memory, it must be evident to every one that any examination as to soundness would be incomplete without a careful consideration of his mental endowments. These qualifications we may learn largely through a study of the expressions of the face. The parts most particularly charged with the manifestations of the internal state of the animal are the eyes and the eyelids, the ears, the nostrils, the lips, and the mouth. These organs, by the different attitudes they assume, deject by turns, gentleness, vivacity, anger, sadness, joy, pain, fear, courage, ferocity, indifference, and stupidity. The importance of the mental make-up of a horse becomes manifest when we consider the very close relationship existing between many of these mental conditions and pathological conditions that are influenced by them.

Excessive fear and ferocity, if chronic, are generally accompanied by disturbances of some or all of the vital, digestive, secretive, or excretive organs. Fright prepares the way for disease by undermining the nervous forces and weakening resistance, and the consequences of excessive anger or viciousness we all know result in the disturbance of every faculty and function. The action of the heart is seriously impaired, digestive processes are instantly checked, and do not proceed until the natural circulation of the blood is restored.

Where there were mental aberrations that, in my judgment, would interfere with his health or usefulness, I would declare the horse unsound.

Osteoporosis, enlarged superior or inferior maxillary bones, and fractures interfering with function, I would consider unsound.

Discussion of Dr. Robertson's Paper.

Dr. E. L. Quitman: If Dr. Robertson takes into consideration the psychic condition and facial expression of animals, I would like to ask what guide he would have in examining mules.

Dr. Robertson: I am somewhat surprised that a veterinarian, who has to depend so largely on his knowledge of the animal from what he can see and find out of the pathology, should ask such a question. No veterinarian pretends to diagnose a case on the thermometer and pulse only.

There is a psychological condition that can be applied to animals—some say they have a soul; others that they have not. There is an expression in all animals by which, to a certain extent, the things that are passing through their minds can be learned, and I am surprised that a veterinarian should ask how this can be applied to a mule. It has been my misfortune not to be much associated with mules, and, therefore, I have not been able to study their physiognomy. When you consider the number of strange horses that are led into the ordinary blacksmith-shop, it is astounding that you never hear of a horseshoer being kicked. It is because the horseshoer knows pretty well how to behave himself around certain horses, and we all know the disposition of a horse the more we are associated with him. Veterinarians who are careless and rough seldom meet with success in the treatment of horses, on account of their actions. I know one who is careless and rough in the handling and treatment of horses, and I have seen horses become extremely nervous on account of it, and I contend that this psychological condition should be carefully observed. I do not pretend to be a physiognomist and to read expressions, but every horse has a general expression that leads us to be careful in going around him. I for instance, now recall a case where a horse will drive double under ordinary circumstances for fifteen or twenty miles, but if you hitch him into a top-buggy you cannot drive him over a mile. The reason is that, one day, when he was so hitched the top-buggy caught in a hook and he became frightened. Chronic kickers are of a very highly nervous temperament and are vicious, and I claim this is very essential in examining a horse for soundness. I would reject such a horse as unsound.

Dr. Quitman related the story of a pleasant mule which was very vicious when meddled with.

Dr. Hawley: Does Dr. Robertson mean to say that an animal can be psychologically unsound?

Dr. Robertson: Yes, sir. I consider that a horse can be psychologically unsound. The line is well drawn. A horse that is a dummy, and whose brain is not in proper working order, is unsound, and the line of demarcation is well marked. I have tried to show the connection between the mind and the work of the animal. I think the connection is very close. A man may be sound in body, but may have paresis. I think it necessary that a horse should have a sound mind and body, and we must take note of the horse's mind. Excessive viciousness I regard as an unsoundness. We must take anything into consideration that affects the physiological combination. A horse must have a sound body and mind. I have rejected several horses on that account.

Dr. A. C. Worms' Paper.

PARTIAL AMPUTATION OF THE TONGUE. This condition is frequently met with, and is due to mechanical injuries. Moreover, stablemen, in order to control unruly or sensitive horses during cleaning, not infrequently pass a cord around the tongue. If this be sharply pulled, the tongue may easily be cut through, and the thinner the cord the more easily does the accident occur. Snaffle-bits produce the same effect, especially if worn. The tongue may also be injured by sharp or displaced teeth.

RUPTURE OF THE FRÆNUM LINGUÆ sometimes occurs in horses, re-

sulting in suppuration, abscess formation, and the production of fistulæ. Steffen, a foreign veterinarian, saw the point of a foal's tongue become gangrenous and slough after having been violently handled during some dental operation. His report of the case points to a bloodvessel having been ruptured.

The diagnosis presents no difficulty. The irritation in the mouth, salivation, want of appetite, or slow, cautious mastication readily indicate the nature of the injury and its extent. Healing is usually rapid and certain, though transverse wounds of the tongue may leave a deep depression. But even this is no great drawback, and is only worth notice, inasmuch as the animal wastes food in eating, and the tongue may be lacerated if forcibly handled during examination.

But a portion of the tongue may be torn away in the first instance or later, and if the frænum linguæ be involved mastication will be rendered difficult.

LOSS OF THE POINT OF THE TONGUE. Attempts to cure protrusion of the tongue have shown that in horses the removal of three-quarters of an inch causes no inconvenience, but where more is lost the animals are unable to bring the food between the back teeth. At times they seek to effect this by holding the head high in the air, like chickens when drinking; but at best some food must be wasted, and mastication takes longer. Graf, a foreign writer, records that a horse which had lost the point of the tongue had severe swelling of the remainder, accompanied by salivation and inability to eat solid food. Only fluids and mashes could be taken. When the wound had cicatrized, the stump only extended about three-quarters of an inch beyond the first molar. In three weeks the horse could again eat ordinary food, but took three times as long as formerly to do so. Lüddecke, another foreign writer, described a similar case in which the tongue was lost as far as the commencement of the frænum, but nevertheless the horse could eat as usual. I regard such a horse as unsound.

PARALYSIS OF THE TONGUE (glossoplegia). Inflammatory processes may interfere with the movements of the tongue, but its paralysis depends on injury to the hypoglossal nerve, which supplies with motor-filaments the collective muscles of the tongue and most of those of the hyoid bone. Wounds, abscesses, or inflammatory processes may affect the nerve at some point of its course or at its origin on the inferior surface of the medulla, and thus produce glossoplegia.

Kater, a foreign writer, saw one-sided paralysis occur in a foal which, three months before, had been wounded in the throat with a knife. On the left side the muscles of the tongue had so completely disappeared that at the point the upper and lower coverings of the mucous membrane were in contact. The paralysis is also seen during severe infections, as of contagious pleuro-pneumonia of the horse. In central paralysis both nerves usually suffer, and, of course, both sides of the tongue, for the two hypoglossal nerves arise very close together. In the horse, paralysis of the tongue sometimes accompanies acute meningitis or hydrocephalus. But all double-sided paralysis is not necessarily central. Diplegia occurs in horses whose tongues have been roughly handled and where both nerves have been injured.

The symptoms of one-sided paralysis are displacement of the tongue and difficulty in mastication and deglutition. In double-sided paralysis both

acts become nearly impossible, particularly the latter. The tongue generally hangs from the mouth. In protracted cases the muscles atrophy, though, of course, in single-sided paralysis only those of the paralyzed side suffer. The disease must not be confounded with the so-called "protrusion," where the tongue is voluntarily lolled out of the mouth. Paralysis is shown by distortion and inability to retract the tongue. The prognosis is unfavorable.

SALIVARY FISTULA. Wounds of the salivary glands and their ducts often fail to heal because the continual flow of saliva pushes aside the granulations and hinders closure. The gland-epithelium finally unites with that of the outer skin, and through the opening so formed saliva flows continually. Although the general condition of the animal is only slightly affected, much saliva escapes during eating, and mats the hair of the cheek, finally producing a blemish. This is an unsoundness.

SALIVARY CALCULI. These concretions form chiefly in the parotid, sublingual, and submaxillary ducts. They are caused by an accidental nucleus, such as a small piece of hay or corn, or other foreign body, penetrating the canal to which the salts of the saliva adhere, forming roundish or mulberry concretions, blocking up the duct, which becomes enlarged and distended with saliva. Sometimes an oat insinuates itself into the orifice of the parotid duct, producing distention of it by saliva, causing it to appear as a pendulous sac on the borders of the jaw. The concretion is only remarked after it has attained a considerable size. It appears as a hard, sharply-defined, slightly-movable swelling, generally lying on the outer surface of the jaw close to the front of the buccal opening of Stenon's duct, but sometimes on the posterior border of the under jaw. The salivary duct is usually distended behind the swelling, and when the flow of saliva is entirely shut off the gland is enlarged. Inflammation is seldom present, but may appear and lead to formation of abscesses. Unsound.

POLYPI. A polypus may be defined to be a tumor attached by means of a narrow pedicle, and the most familiar example is the nasal polypus attached to the superior part of the nostril. It is of soft consistence, bleeding when injured; often containing a limpid fluid in its centre, growing downward, filling the cavity of the nostril, causing much uneasiness to the animal and interfering very materially with the respiratory function. There is a discharge from the affected nostril, causing much uneasiness to the animal, often tinged with blood, especially during exercise or work. The animal makes a snuffling sound in its breathing, and frequently sneezes. The tumor cannot always be seen, but by growth becomes visible to the examiner. Sometimes it grows in the contrary direction and falls into the isthmus, and is apt to become temporarily lodged in the larynx, causing the animal to breathe with the greatest difficulty, with a loud, roaring sound, and often to fall down from exhaustion and want of breath. By great effort the animal coughs the obstructing tumor from the larynx into the fauces again, and then the roaring sound and difficulty of breathing disappear. This is an unsoundness.

NASAL CATARRH. Catarrh means a discharge of fluid from the mucous membrane. The form of catarrh under present consideration is at first a congestion, followed by inflammation of the mucous membrane of the nasal chamber—the Schneiderian or pituitary membrane, as it is specifically termed. The inflammation usually extends to the membranes of the sin-

uses of the head and often to the membrane of the larynx and pharynx, causing the complication of sore-throat. Quite frequently the membrane of the eyes is also affected, as evidenced by its congested condition and the flow of tears down over the cheeks; the nasal duct is lined with a continuation of the same membrane, and hence the inflammation of the eyes is only an extension of the disease over a continuous tract and not a special disease, as often supposed.

The membrane of the nasal duct being swollen, the effect of the inflammation or congestion, the tears cannot flow freely through it, therefore they escape from the eyes and flow over the cheeks.

Symptoms. The membrane at the beginning of the attack is dry, congested, and irritable; it is of a much deeper hue than natural, pinkish-red or red; soon a watery discharge from the nostril makes its appearance; the eyes, also, may be more or less affected, and tears flow over the cheeks. The animal may be dull, and frequently he emits a sort of sneezing snort, but does not cough unless the throat is affected. A few days after the attack begins the discharge from the nostrils changes from a watery to that of a thick mucilaginous state, of a yellowish white color, and may be more or less profuse. Often the appetite is lost, and the animal becomes debilitated. There is a rise in pulse and temperature. I regard such an animal unsound.

NASAL CYST. This is a small globular tumor sometimes found within the nostril, under that part of the skin that is seen to puff or rise and fall when a horse is exerted and breathing hard. These tumors contain matter of a cheesy consistence, and are simple. If the tumor is well opened, and the matter squeezed out, nature will do the rest to perform a perfect cure. If the opening is made from the outside through the skin it should be at the most dependent part, but much the best way is to open the tumor from the inside. I regard such an animal as sound.

Discussion of Dr. Worms' Paper.

Dr. Walker: I wish to understand whether we should drive a horse or not. I am interested in a driving-school on the West Side, and would like you to tell me to-night whether you think he should not be ridden in a saddle. I think in order to make a complete examination, you should not only drive a horse, but ride him.

Dr. Ryan: Do you consider side-pulling or tongue-lolling a disease?

Dr. Hawley: In bringing up the question of soundness or unsoundness, it must be viewed from two sides—the practical side and the theoretical side. Before going any further, I would like to ask this Association if it has decided on what is an unsoundness. I think it unprofitable to discuss it unless you define the term.

Dr. Walker: We have not arrived at that condition. It was considered that a committee would take that up further along, and then get the sentiments of the members here, and find out what they considered sound or unsound.

Dr. Hawley: In my opinion a horse may be technically unsound, but practically sound or serviceably sound. A bare spot is unsoundness—it is abnormal; a bad habit is unsoundness; kicking and balking, unsoundness; a cribber, for all practical purposes, is sound—cribbing is a habit,

not a disease. My definition is this: That any blemish or defect which injures the usefulness or selling-price is an unsoundness.

Dr. Worms said in his paper that if three-quarters of an inch of the tongue of a horse is removed, he will retain the food in his mouth. Technically that horse is unsound, because a part of his tongue is gone; practically he is sound. He can eat, and is in good condition, and would sell for just as much money as if he had the tongue. He says that tongue-lolling is not an unsoundness. It certainly is an unsoundness, not a disease. No man that cared for appearances would drive a tongue-loller through the street. Nasal cysts, he says, he would not consider an unsoundness; but in his definition he says they are abnormal. I would like to know if a nasal cyst is not an abnormality. It is an abscess, and contains pus, and if large enough would interfere with breathing.

Dr. E. L. Quitman: I would take exception to the remark that tongue-lolling is a habit. It is sometimes a symptom of decayed teeth. I have seen several cases where the decayed tooth was removed and the tongue would be carried normally.

Dr. P. Quitman: I wish to take an exception to the remark that tongue-lolling is a habit. It may be a disease—the horse cannot put his tongue back into the mouth. Such horses suffer a good deal with dry and cracked tongue. I have an idea it is a disease of the nerves or muscles that control the tongue, and I believe it is an unsoundness.

Dr. Walker: It is quite possible for tongue-lolling to be a habit, as there are tongue-lollers that can be stopped. I have seen tongue-lollers cured by putting two large pieces of leather under the tongue.

Dr. P. Quitman: That is curing by mechanical means. Some one interrupted and asked the difference between a habit and vice, to which Dr. Quitman replied that he understood that kicking was a vice in horses. A horse may be sound and be vicious; he is a kicker. Vice is not an unsoundness, according to the correct English definition of the word. Such a horse is dangerous and can be rejected, according to the law. Although you may claim that the horse is sound, according to law vice invalidates the sale.

Dr. Walker: English law is, "Sound, free from vice, and a worker."

Dr. Campbell: Will we accept or reject horses having the diseases mentioned if they occur?

Dr. Caspar: I differ with Dr. Worms somewhat in regard to the slight discharge from the nose in horses, as there are many horses coming from the country with a slight discharge from the nose, but are perfectly sound, and I would not reject them. Dr. Worms says anything which is not normal he would consider unsound. I do not consider it is fair to reject a horse with a temperature of 101.5° that has a slight discharge from the nostril. I see horses every day with a temperature of 102° F., with a slight discharge from the nose, and which are in every way sound, and I think it would be a great injustice to the seller to reject them.

Dr. Campbell: I would like to ask Dr. Caspar if he found a horse with a temperature of two degrees above normal, would he pass him?

Dr. Caspar: We do not take the temperature of animals out there. I still think it an injustice to reject a horse when he is perfectly sound and satisfactory in every respect, and satisfactory to the buyer, if he has a slight discharge from the nostril and a temperature of 102° F., and I would not

reject him. My original argument was 101° or anything above normal, and I went to 101.5° or even 102°.

Dr. Worms: Dr. Caspar is discussing acute catarrh, where you get a temperature of 102°, mucous membrane of the eye injected; then comes the question whether it is acclimation fever or catarrh. In acute catarrh you do not get a purulent discharge. In chronic catarrh you get a purulent, thick, mucilaginous discharge, and it is an unsoundness, and I would not pass a horse with that discharge from the nose. A slight running at the nose, like you find in ephemeral fever and acute catarrh, I do not consider an unsoundness.

Dr. Quitman: The practical and technical division which Dr. Hawley made is a good one. For instance, I examined a high-priced horse some two or three months ago. He was extraordinarily sound, with the exception of a discharge from the nostrils and a temperature of 104°. The owner did not even go to the yards, but left the examination to me. After making same, I telephoned that the horse was sound, except for the time being he was sick, but thought he might recover. I told him of the danger of removal from the stable. He asked if I considered it safe for him to purchase. I told him it was safe if the animal was treated where he now was. In passing a horse for soundness it is well to put it to the common sense of the purchaser. A horse with ephemeral fever or acclimation fever is practically and technically unsound. This is so, for the slightest amount of work or exercise is apt to make him catch a fresh cold and bring on pneumonia or something else; at the same time, if the owner takes the chances, I would pass him. I drove the above horse with a temperature at 104°. I told the owner (the seller) he was sick, but would drive him at his risk; but, at the same time, you cannot give a dealer a fair show by passing a horse with fever at 104°.

Dr. Walker: You would not advise us to pass or drive a horse with a temperature of 104° *Ans.* No!

Dr. Walker: Why did you do it? *Ans.* We cannot always go according to law; I wanted to see if any lameness was present. The dealer told me to hitch him up and wind him.

Several made objections to winding a horse with a temperature of 104°.

Dr. Worms: I wish to add this remark about tongue-lolling: I consider a veterinarian is making a very careless examination if he does not drive the horse; of course, if a man is examining a truck-horse, it is a different thing. I never examine a driving-horse without riding behind him. I think a veterinarian is making an extremely careless examination if he does not drive the horse to discover whether he is a tongue-loller or side-puller, and, if either condition be present, he should tell the buyer and let him decide if he wanted the animal or not.

Dr. Quitman: It is very seldom, when called upon to examine a horse, that you will get to drive him; in fact, the party who buys him may drive him and not discover he is a tongue-loller. It is very hard to find whether a horse is a side-puller or tongue-loller unless you drive him. You may examine such a horse and say he is all right, if you do not drive him.

Dr. Hawley: Horses are sold at the stockyards every day with a temperature ranging from 101° to 104°. They are hitched up and winded time and again, and come out all right.

Dr. P. Quitman: Horse-dealers and veterinarians should look out for

themselves. Some horses will retain their appetite, even though they be very sick. I would not pass a horse with a discharge from his nose, because it may subside within a few days or lead to something serious.

IOWA STATE VETERINARY MEDICAL ASSOCIATION.

TENTH annual meeting called to order at the Savery House, Des Moines, January 12, 1898, at 10 A.M., by the President, G. A. Johnson. There were present: Drs. S. H. Johnson, W. B. Niles, A. T. Peters, F. M. Roys, P. Malcolm, C. E. Stewart, H. L. Stewart, J. G. Parslow, J. I. Gibson, J. W. Griffith, E. A. Buxton, J. A. Campbell, A. T. Peters, J. H. McLeod, P. O. Koto, W. F. Lagear, A. S. Brodie, G. A. Johnson, G. A. Scott, H. E. Talbot, J. L. Williamson, W. H. Austin, D. H. Miller, G. M. Walrod, C. J. Hinkley, R. A. Craig, J. E. Brown. Minutes of the previous meeting were read and approved. Dr. G. A. Scott was appointed to fill vacancy on Board of Censors.

President's address was delivered, and discussion followed.

Letters were read by the Secretary from members and invited guests expressing regret at their inability to be present, and wishing the Association a successful meeting. Also from Drs. L. A. Thomas, E. Benor, W. L. Williams, and W. A. Heck.

Dr. Gibson moved that as Dr. Thomas had been at considerable expense as a member of the Legislative Committee and had been a creditable member of the Association, before taking up the M.D. profession, that his dues be credited up to him in full, and that he be made an honorary member; seconded and carried.

The resignation of Dr. W. A. Heck was accepted, and he was voted an honorary membership so long as he remained a non-resident of the State.

The Treasurer's report, showing a balance on hand (after all debts were paid) of \$10.48 was read, and referred to an auditing committee. Drs. W. H. Austin, C. E. Stewart, and C. J. Hinkley were named as Auditing Committee.

Secretary's report was read, and discussions followed. Tuberculin and tuberculin-tests, mallein and mallein-tests were discussed; also the idea of making an effort to have veterinarians placed on the programme of Farmers' Institutes and stock meetings as a means of educating the farmers and stockmen along sanitary lines, and, also, of bringing the profession before the people in the light of being awake to their needs and working for the best interests of the live-stock industry and general public health.

Drs. G. P. Stalter, E. A. Buxton, A. L. Brodie, R. A. Craig, and F. M. Roys were elected to membership.

Dr. A. T. Peters, of Lincoln, Neb., was present and extended an invitation to our members to be present at the meeting of their State Association on January 18, 1898.

Dr. J. I. Gibson, State Veterinary Surgeon of Iowa, announced that the annual report of his office was ready for distribution and would be sent to anyone who desired a copy.

Meeting adjourned until 1.30 P.M.

Afternoon Session.

Meeting called to order by President Johnson.

Report of cases on "Diseases and New Treatment," was made by Dr.

W. B. Niles, chairman, and brought forth an animated discussion on the different subjects. Drs. Gibson and Austin reported an outbreak of an infectious catarrhal disease in cattle. Dr. Koto reported a case where a piece of glass, supposed to have entered the body by way of the stomach, was removed from a mare's tail. Dr. Peters reported a case where a whip-stalk had been used as a probang to unchoke a cow; a piece was broken off and passed into the stomach. Some two years later an abscess formed in the cow's flank, and on being opened the piece of whip was found and removed. Dr. Brown reported case in which a sharp-pointed, headless nail had been swallowed with food, by a cow, and passed from the stomach, through its wall, through the diaphragm, to the heart. Several other interesting cases were reported by Drs. Campbell, Walrod, Gibson, Miller, and others.

Report of Committee on Articles for Newspaper Publication was made by Dr. W. B. Niles, chairman.

Auditing Committee reported that the Treasurer's accounts had been examined and found correct. Report was adopted and the committee discharged.

Dr. Gibson moved that Dr. Niles be made a committee to assign papers and essayists for Farmers' Institutes, as suggested in Secretary's report; seconded and carried.

Dr. Gibson offered a resolution referring to the U. S. V. M. A. meeting at Omaha.

Dr. Brown moved that the chair appoint a committee of three on resolutions; seconded and carried. The Chair appointed Drs. W. B. Niles, S. H. Johnson, and J. H. McLeod.

A committee, consisting of Drs. Brown, Niles, and Gibson, was appointed to investigate and get prices on the printing of the reports of this meeting, and to report later.

Dr. S. H. Johnson moved that two delegates be elected by ballot to represent this Association at the U. S. V. M. A. meeting in Omaha; seconded and carried.

Meeting adjourned until 7.30 P.M.

Evening Session.

Joint meeting of I. S. V. M. A. and Iowa Agricultural Society was called to order by President Johnson.

Dr. J. I. Gibson was introduced and read a paper on "Actinomycosis." On finishing Dr. A. T. Peters was introduced, and read a paper on the subject "Immunity." After the reading of this paper a number of very fine stereopticon views, illustrating the two papers, were thrown on the canvas, and greatly enjoyed by all present. Discussion followed for a short time, and then President John Cownie, of the Agricultural Society, arose and extended a most cordial invitation to the I. S. V. M. A. members to attend their banquet. Dr. Gibson moved to accept the invitation; seconded and carried.

Adjournment was made until next morning at 9.30.

Morning Session—Second Day.

Meeting called to order by President Johnson at 9.30 o'clock.

Discussions were taken up on Drs. Gibson's and Peters' papers. They

were principally along the lines of preparing serums, hog-cholera treatment, etc.

Dr. J. G. Parslow was introduced, and read a paper on the subject, "Reflex Paralysis, or Paralysis from Indigestion." Discussion followed.

Dr. J. W. Griffith then read a paper on "Dairy Sanitation." Discussion followed.

Dr. J. H. McLeod read a paper entitled, "Notes from Case-book." Discussion followed on the treatment of umbilical hernia.

Dr. Emmert, member of the Iowa State Board of Health and State Senator-elect, was present, and spoke on the prevalence of tuberculosis in the State, and of its spread through the importation of Eastern dairy-cattle into Iowa. The Doctor outlined a bill which he proposed to introduce into the State Legislature, that would require a certificate of tuberculin-test to accompany cattle shipped into the State. Discussions followed. Dr. Emmert also spoke of a bill intended to prevent the spread of hog-cholera, by strict quarantine measures, which he would probably introduce.

Adjournment was then made until 4 P.M., so that the members might attend the inaugural exercises of Governor-elect L. M. Shaw.

Afternoon Session—4 o'clock.

Meeting called to order by President Johnson.

Dr. S. H. Johnson then read a paper on the subject, "Removal of Clitoris to Overcome Viciousness." Discussion followed on the operation and results; also the difficult operations for ovariectomy. Discussion closed.

Election of officers was made the next order of business. This resulted in the election of: Dr. S. H. Johnson, Carroll, Iowa, President; Dr. G. A. Scott, Independence, Iowa, First Vice-President; Dr. J. G. Parslow, Marshalltown, Iowa, Second Vice-President; Dr. J. E. Brown, Oskaloosa, Iowa, Secretary and Treasurer; Dr. W. H. Austin, Newton, Iowa; Dr. D. H. Miller, Harlan, Iowa; Dr. J. H. McLeod, Charles City, Iowa, Board of Censors. Delegates to U. S. V. M. A. meeting: Dr. P. O. Koto, Forest City, Iowa; Dr. H. E. Talbot, Des Moines, Iowa.

The Committee on Printing of Reports of Meeting reported that the same might be printed in the State Agricultural Society's report, with a copy for each member, free of charge. The report was received and the Secretary instructed to prepare the report and papers for publication, and forward same to the Secretary of the Agricultural Society.

The Committee on Legislation reported, through its chairman, Dr. J. I. Gibson. Report was accepted and the committee discharged. Dr. Niles moved that the President and Secretary should constitute a committee to voice the sentiment of the Association, and coöperate with the State Veterinary Surgeon on legislative matters; seconded and carried.

The Committee on Resolutions reported the following:

WHEREAS, we learn from Dr. Peters that the meeting of the U. S. V. M. A. will be held in Omaha next September;

Resolved, (1) That we, the members of the I. S. V. M. A. rejoice with the Nebraska State Veterinary Medical Association and the veterinarians of the West in the location of the U. S. meeting, and pledge to the Nebraska Association our coöperative action in receiving the members of the U. S. Association. (2) That we recommend a joint meeting of this Asso-

ciation and the Nebraska Association on the first day of the U. S. meeting in Omaha.

WHEREAS, Senator Emmert, of the State Board of Health, has kindly appeared before the I. S. V. M. A. for the purpose of explaining proposed legislation, and asking for the coöperation of the Society; therefore, be it

Resolved, That the members of the Iowa State Veterinary Association, in convention assembled, express their great appreciation of the interest shown by Dr. Emmert in the live-stock industry of the State, and pledge him their hearty support and coöperation in securing the passage of the proposed bill to prevent the introduction of bovine tuberculosis into the State, and any other legislation along sanitary lines; be it

Resolved, That we extend our sincere thanks to Dr. Peters for the great interest he has taken in our meeting, for the reading of his very able paper on "Immunity," and for the exhibition of the specimen in connection therewith. Also to Dr. Scott for the use of the stereopticon; and be it further

Resolved, That the members of the I. S. V. M. A. extend their thanks to the State Agricultural Society for their kind invitation to their annual banquet, and for the general interest they have shown in this meeting; be it

Resolved, That this Association tender its thanks to the management of the Savoy Hotel for the courtesies extended to the Association and for the use of the room during the annual meeting.

W. B. NILES, J. H. McLEOD, S. H. JOHNSON,
Committee on Resolutions.

The resolutions were adopted and ordered spread upon the minutes.

Dr. J. I. Gibson read a paper; subject, "General Sanitation," and discussion followed.

Dr. Brown moved that the Committee on Disease and Treatment be continued another year; seconded and carried.

Dr. Gibson moved that the meeting adjourn, to meet in Des Moines next fall or winter, at the call of the President and Secretary; seconded and carried.

JAMES E. BROWN.

ONEIDA COUNTY VETERINARY MEDICAL ASSOCIATION.

THE regular quarterly meeting was held at Stanwix Hall, on Tuesday afternoon, February 8, 1898. In the absence of President Morrow, of Onieda, Vice-President Huff, of Rome, occupied the chair. The other members present were: Dr. Stebbins, of West Winfield; Dr. Markham, of Port Leyden; Dr. Findlay, of Camden; Dr. Bettinger, of Canastota; and Dr. Currie, of Rome.

The committee appointed to obtain certificates of membership reported progress, though the certificates are not yet ready.

Dr. J. M. Currie, the essayist of the day, read an interesting paper on the subject of "Abortions in Cows," which he said was one of the most serious scourges that stock-breeders have to contend with, and he thought veterinarians should give the matter continuous attention, in order to investigate the means by which it might be averted. Among the causes named were foot-and-mouth disease, ergotted grasses, accidental diseases, tuberculosis; but the most common cause is, doubtless, infection. Among

the preventive measures named were free access to salt or feeding on saline herbage. In closing, the speaker related some of his own experiences in such cases. A general discussion of the paper followed. The use of disinfectants, local applications, and internal antiseptics was recommended. Dr. Currie prophesied that in a few years some scientist would discover a serum to prevent it.

Dr. Huff also read a valuable paper on the same subject, confining himself to sporadic cases. The causes, he said, were numerous. Among them were accidents of various kinds. Sympathy is a possible cause, or a diseased condition of the system. He said, in conclusion, that he had been collecting notes on the subject since the last meeting, and decided to lay them before the members.

After some discussion of the paper, branching out into a talk on the results of feeding ensilage and sugar-beet pulp, Dr. Huff read a paper on "Bacteriology," of which he said no fewer than five hundred microorganisms have been isolated and described. Most of them are perfectly harmless, and some are positively healthful. While the science of bacteriology is of recent origin, as long ago as the sixteenth century a physician became convinced that some diseases were caused by living contagion.

At the close of Dr. Huff's paper, which was heard with close attention, the meeting adjourned.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE regular monthly meeting was called to order at 8.30 o'clock, Wednesday evening, February 2d, at the Academy of Medicine, with the President, Dr. Huidekoper, presiding. The following members responded to roll-call: Drs. Bell, C. C. Cattanch, J. S. Cattanch, J. S. Cattanch, Jr., Dickson, Delaney, Ellis, Farley, Gill, Huidekoper, Hanson, Neher, O'Shea, Ryder, and Sherwood (15). There were also present as visitors Dr. Grenside, of New York; Drs. Ackerman and Goubeaud, of Brooklyn; Dr. Nicolas, of Mt. Vernon; and Messrs. English, Fretz, Fox, and Sandford, students from A. V. C.

Moved and seconded that guests be given the privilege of the floor in debate; carried.

Report of Judiciary Committee, Dr. O'Shea, chairman: Jury-exemption Bill was introduced in the Senate by Mr. Sullivan, January 5th, and referred to Codes Committee, the same having been introduced in the Assembly by Mr. Sullivan, January 5th, and referred to Codes Committee. The Judiciary Committee called the Civil Service Commission's attention to the law regarding the practice of veterinary medicine in New York State and appointments made, and they promise, if presented in writing, to see that the "commission" follow the spirit of the law regarding examinations for meat- and milk-inspectors.

The Judiciary is looking for illegal practitioners, and just as soon as sufficient evidence can be obtained they will be prosecuted. Moved and seconded that the report be accepted; carried.

Report of Committee on Ways and Means, Dr. Bell, chairman: This committee report that they are making arrangements for the five remaining meetings of the year, and have arrangements for the March meeting about complete. Moved and seconded that the report be accepted; carried.

Reading of papers: Dr. Neher read a carefully prepared paper on "Development of Bone," showing under the microscope the ossification zones or centres. Following this, Dr. Bell read a very interesting and practical paper on "Rubber Shoes for City Horses," which was freely discussed by the members present. During the reading of Dr. Bell's paper Dr. Neher was setting up his microscope, to which the members had free access during the rest of the evening.

Applications for membership in the Association were filed by Drs. Ackerman and Grenside; referred to the Board of Censors. Moved and seconded that a recess of twenty minutes be taken while the Board acted upon the applications; carried. Board of Censors favorably recommended Drs. Ackerman and Grenside, and they were declared members of the Association.

New Business: Moved and seconded that the Judiciary Committee formulate a letter, to be signed by the President and Secretary of the Association, to be sent to the President of the Civil Service Commission; carried.

Moved and seconded that a vote of thanks be extended to Drs. Neher and Bell for their papers; carried.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

VETERINARY MEDICAL SOCIETY OF THE ONTARIO VETERINARY COLLEGE.

THE regular weekly meetings of the Society were very interesting during the past month. The papers were well written, and many valuable points were brought forward during the discussions. As every student is required to be with a practitioner during the summer vacation, the methods of many eminent veterinarians are in this way communicated to the students. They therefore find the meetings of great value in obtaining both theoretical and practical knowledge. The following is a list of the papers read: P. LeC. Garnett, "Chloroform as an Anæsthetic;" J. S. McIntyre, "Craniotomy in Cow;" L. Bailey, "Nasal Gleet in Sheep;" A. G. Van Tine, "Abortion;" E. H. Lawley, "Anthrax;" J. G. Cruikshanks, "Indigestion in Horse;" H. P. Reed, "Sanitas;" B. W. Powell, "Modes of Death;" C. H. A. Stevenson, "Open Joint;" W. A. Campbell, "Periodic Ophthalmia;" J. Dixon, "Aconite;" W. R. Clark, "Means of Arresting Hemorrhage;" A. H. Krull, "Influenza;" W. G. Huyett, "Pulmonary Emphysema;" A. P. Laubach, "Pleuro-pneumonia;" D. Allen, "Potassium Bromide."

Communications: A. D. McLauchlin, "Rumenotomy;" A. Jordan, "Fracture of Premaxilla;" E. C. Elwes, "Canker in Foot;" L. T. Dunn, "Myorrhaxis;" C. W. Fisher, "Phymosis in Boar;" E. T. Cunningham, "Rupture of Stomach;" Hamlet Moore, "Azoturia;" H. W. Stedman, "Puncture of Foot;" F. M. Hayward, "Capped Elbow;" G. P. Haytes, "Prolapsus Ani;" G. W. Higginson, "Foreign Body in Posterior Femoral Region;" B. Royer, "Tympanitis in Ox;" A. I. Sorensen, "Mammitis in Sow;" W. L. Adams, "Choking;" T. Rowland, "Tympanitis in Ox;" W. R. Clark, "Acute Laminitis."

C. W. FISHER,
Secretary.

MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.

THE sixteenth annual meeting was held in the parlors of the Hotel Wentworth, Lansing, Mich., February 8 and 9, 1898. First Vice-President Dr. J. Black, of Richmond, called the meeting to order at 2.30 P.M.

The following members answered roll-call: Drs. J. Hawkins, D. Cummings, E. A. A. Grange, W. J. Byers, B. C. McBeth, William Jopling, W. W. Thorburn, G. W. Dunphy, James J. Joy, A. Campbell, Judson Black, F. M. Blatchford, H. F. Palmer, A. McKercher, W. S. Hamilton, L. A. Grinnell, D. M. Waldo, Edward T. Handy. Minutes of the last annual meeting were read and approved.

Acting President Dr. J. Black delivered quite a lengthy address to the Association. He said that reports from many of our colleagues in this State and other places do not reassure us that practice, on the whole, has improved much over last year, but he thought that the conditions were favorable for improvement in the near future. He put in a strong plea for the Association, urging the members to redouble their efforts in its behalf. He suggested that the Committees on Intelligence and Education and on Diseases endeavor to make full reports at our meetings. These reports form an important part of our programme, and if some extra effort was made by those committees in gathering material from the time of one meeting till the date of the next, very interesting papers would be the result.

Dr. Black said further that we have to our credit, the past year, one act that has amply repaid all trouble and expense, viz, the hanging on the fence the hide of one "Dr." Coester, erstwhile State Veterinarian. He had been appointed by Governor Pingree after this Association, at its last annual meeting, unanimously requested him to reappoint Prof. Grange. The Association being ignored entirely in the matter, were naturally filled with righteous indignation, and proceeded to make a "kick;" but the Governor would not reconsider the matter, and the Senate was appealed to, but in vain. It was only after said Coester, by indisputable evidence, was proved to be a "quack," a graduate of no known college, and therefore not eligible to hold the office, that our turn came, and we were successful in having one of our members appointed to the position.

The subject of milk- and meat-inspection has as yet received little or no consideration from the health authorities of this State compared with such action in other States. He thought it was our duty as veterinarians to sound the alarm and impress upon the health authorities the necessity of such legislation.

Communications were read from Dr. W. McQueen, of Oxford; Dr. H. M. Gahn, St. Johns; Dr. J. W. Ferguson, Bay City; Dr. D. P. Yonkerman, Kalamazoo; Dr. George Waddle, Hastings; Dr. J. C. Whitney, Hillsdale; Dr. S. Brenton, Detroit, expressing regret at their inability to be present. Also a communication from Dr. W. H. Hoskins, of Philadelphia, in which he expressed thanks for programmes of our meeting, and asked for a report of the proceedings. Also an invitation from Mayor William C. Mayberry, of Detroit, and the Detroit Convention and Business Men's League, to hold our next annual meeting in Detroit.

The several communications read were received and placed on file.

The report of the Secretary was read and accepted.

The report of the Treasurer was read and referred to the Finance Committee, as were also the bills presented.

Prof. Grange reported for the Committee on Intelligence and Education. He brought out the following points: That nearly all veterinary colleges had adopted the three-year-course plan. That tetanus-antitoxin was a prophylactic, but not a curative agent. That glanders had nearly disappeared in this State. He read a communication that was a translation from German, speaking of the prevalence of tetanus in certain places there, the conclusion being that it was unsafe to perform any operations without first treating the patient with antitoxin. This paper was of such interest that a motion was made and passed that Prof. Grange have the same sent to the veterinary journals for publication. Prof. Grange also suggested the idea of a circulating library for the members, and gave plans as to how same might be operated; the various veterinary journals might also be read by a larger number, if some co-operative plan could be arranged, as the pocket-book of only a few could afford to subscribe for all the journals. He also thought it would be well for our Association to have a copy of the *Veterinary Blue-Book*, edited by Dr. Huidekoper. A good discussion followed, participated in by Drs. Hawkins, Hamilton, Palmer, Dunphy, Campbell, and others.

Dr. J. Hawkins reported for the Committee on Diseases, tetanus and parturient apoplexy being discussed freely.

Owing to an injury, Dr. Giffin, chairman of the Committee on Legislation, was not present, but presented his report through Dr. Hawkins. Upon motion the report was accepted and the committee discharged.

Adjournment was taken till 7.30 P.M., at which time the meeting was called to order by Dr. Black.

The Finance Committee made their report, which showed that everything was correct with the Treasurer's books. The report was accepted.

Dr. George W. Dunphy, State Veterinarian, read a paper on "Azoturia," which was freely discussed.

Dr. J. Hawkins gave his experience with hog-cholera. He said it was assuming alarming proportions in the State. The discussion following was interesting. The disease is apparently incurable, and thorough disinfection during an outbreak and following the same was recommended.

Prof. C. D. Smith, of the Agricultural College, was introduced at this time by Prof. Grange. He made a pleasant address, and invited the Association to visit the college and experiment station in the morning. The invitation was accepted and arrangements made to take the street-car at 8 A.M.

The question of legislation was taken up. Dr. Hawkins read the bill as presented to the last Legislature. A slight amendment was made to it, and the old committee, consisting of Drs. Giffin, Black, and Ferguson, with the addition of Dr. G. W. Dunphy, were appointed to take the same in hand and have it presented to the Legislature at next session as early as possible.

The question of members being reinstated who were suspended for non-payment of dues was discussed, and a resolution passed that any suspended member applying for reinstatement can be so reinstated by paying all back dues up to the date of application for reinstatement.

The Association accepted an invitation from the Ohio Association to

meet with them in joint session in Toledo, Ohio, next July. It was decided that, in case arrangements were made to meet the Ohio Association in July, arrangements be made to spend one day in Detroit before going to Toledo.

The question of asking the U. S. V. M. A. to hold a meeting in Detroit in the near future was also discussed.

Election of officers resulted as follows: President, Dr. J. Black, Richmond; First Vice-President, Dr. H. F. Palmer, Brooklyn; Second Vice-President, Dr. James J. Joy, Detroit; Third Vice-President, Dr. E. T. Handy, Eaton Rapids; Secretary and Treasurer, Dr. William Jopling, Owosso; Board of Directors, Drs. E. A. A. Grange, F. M. Blatchford, A. McKercher, James Drury, D. M. Waldo, and J. W. Ferguson. Standing Committees—Intelligence and Education: Drs. E. A. A. Grange, J. Hawkins, and D. Cummings. Diseases: Drs. G. W. Dunphy, W. W. Thorburn, and J. J. Joy. Finance: Drs. A. Campbell, L. A. Grennell, and W. S. Hamilton. Legislation: Drs. W. A. Giffin, J. Black, J. W. Ferguson, and G. W. Dunphy.

Essays and papers for next meeting: Dr. H. F. Palmer, "Milk and Meat-inspection;" Dr. E. T. Handy, "Parturient Apoplexy;" Prof. E. A. A. Grange, "Disinfection;" Dr. W. W. Thorburn, "Electricity as Applied to Animals;" Dr. S. Brenton, "Wry Tail;" Dr. F. M. Blatchford, "Selected."

Adjournment to meet at 8 o'clock A.M., Wednesday, February 9th, at which time all assembled and went to the Agricultural College, where two hours were very pleasantly spent in looking over the various departments.

From 10.30 to 12.30 a clinic was held at the infirmary of Dr. Thorburn. Drs. Joy, of Detroit; Dunphy, of Quincy; and Campbell, of Jackson, being the principal demonstrators.

After dinner a short session was held before taking final adjournment.

A vote of thanks was given Prof. Smith and the fraternity of the Agricultural college for the very courteous and considerate attention accorded us while at the college.

A vote of thanks was tendered Mr. and Mrs. Wentworth, our host and hostess, for their kindness and attention, which aided materially in making our stay in the capital very pleasant.

WILLIAM JOPLING,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE February meeting was held on the 8th inst., Dr. Thomas B. Rayner presiding, as both President and Vice-President were absent. But few of our members responded to roll-call. Those present were Drs. W. H. Hoskins, W. S. Kooker, W. L. Rhoads, T. B. Rayner, C. J. Marshall, and A. N. Lushington. Our list of visitors was also short at this meeting, but three or four being present. Among the visitors were Drs. J. N. Megary and H. D. Hackler.

After the regular routine of business and discussion of the resolution offered at previous meeting, to make the payment of five dollars initiation fee cover dues to succeeding annual meeting, it was unanimously adopted. Drs. Marshall and Houldsworth made a report at some length

upon the extent to which dairies were under veterinary sanitary supervision. Dr. Hoskins made a report upon the agitation at present with the Board of Health regarding methods of serving milk. Dr. Rayner appointed Dr. Pearson on the committee already appointed to keep in touch with these meetings.

Dr. C. J. Marshall now read an interesting paper on the "Better Methods of Handling Milk." Notice was now given of the annual meeting of the Pennsylvania State Veterinary Medical Association, to be held in Philadelphia, March 8th, when the meeting adjourned to meet March 8th in conjunction with State Association.

DR. W. L. RHOADS,
Secretary.

PENNSYLVANIA—APPEAL FOR GREATER INTEREST IN THE U. S. V. M. A.

WE wish to call your attention to the fact that it is the duty of all qualified veterinarians to join the United States Veterinary Medical Association.

1st. It is an honor to belong to the highest Association in this country, and all veterinarians should have a desire to add their names to its roll; it gives to them a standing that justly belongs to every good veterinarian.

2d. It is a source of education that cannot be received by any other method. We get the education of many minds concentrated and meted out to us in a manner that could not be appreciated by reading or, in fact, by any other way than orally.

3d. We should understand what will do the most good to the greatest number in our profession; by uniting we can do this; by individual action we cannot. To quote Professor Hamilton, in speaking of the Farmers' Institute, he says: "The great weakness of our country people lies in their lack of consolidation of thought upon a given question."

"When all of the country people agree upon any given subject, their desires will be gratified. Their failure lies in their lack of agreement, and the lack of agreement is usually due to a lack of accurate knowledge of the subject and its true bearing upon their industry."

This, we think, is applicable to us as a profession. While local associations are good educators, the meeting of the whole body of veterinarians can consolidate thought upon questions that are of vital importance to us as American veterinarians, that cannot be done by local or other associations.

4th. The mercenary view—take it in a business light; will it pay? Yes, it will pay, even if you never attend any meetings. You will receive the printed proceedings of the Association, and in numerous other ways receive more than your money's worth.

While other occupations returning a revenue equal to the veterinarian's are often taxed one hundred or more dollars per year, the veterinarians are lightly taxed. Surely, then, we should deem it our duty to self-impose a tax to help our Association, which is ourselves, even if we cannot make ourselves believe it an imperative duty to attend the meetings. If we could induce every veterinarian in this country to join and take an active interest in this Association, we would advance professionally in the next ten years far beyond the belief of the most imaginative mind among us. Thus by elevating the profession we elevate ourselves, and by elevating ourselves

we gain larger and better practice, proving it to be a paying investment to join this Association.

We hope that we have made it clear to you that it is your duty to join this Association. If you will send me your cheque for five dollars I will forward the same to the proper officers; your name will then be presented at the next meeting, September 6, 7, and 8, 1898, at Omaha.

We also desire you to send us reports of the prevailing diseases in your neighborhood, with any other items that will be of interest to the Committee on Diseases.

Now, we have tried to convince you that it is to your interest to join this Association. Will you favor us by a reply by return mail?

W. H. RIDGE,
Resident State Secretary.

Trevoze, Bucks Co., Pa.

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

THIS Association convened for its fifteenth annual session in the parlors of the Hotel Goodale, Columbus, Ohio, on January 12, 1898. The meeting was called to order by President Dr. E. H. Shepard at 7.45 P.M. Roll-call showed a good attendance of members as well as visitors. Minutes of last meeting were read and approved.

Election of officers for the ensuing year resulted as follows: President, Walter Shaw, V.S., Dayton; First Vice-President, W. J. Torrance, D.V.S., Cleveland; Second Vice-President, L. W. Carl, V.S., Columbus; Third Vice-President, S. D. Myers, V.S., Wilmington; Secretary, William H. Gribble, D.V.S., Elyria; Treasurer, T. B. Hillock, V.S., Columbus. Three new members were elected: J. E. Foster, V.S., Coshocton (Ont., 1891); B. J. Schmidt, D.V.S., Wapakoneta (New York, 1892); R. J. Mitchener, V.S., Lebanon (Ont., 1885).

The remainder of the evening was used very beneficially to all, in the reporting of interesting cases, and at 10.30 P.M. adjourned.

The session reconvened at 8 A.M., January 13th, when the Committee on Contagious Diseases and Committee on Veterinary Law rendered reports.

Dr. Kent, of Cadiz, Ohio, exhibited some of the finest specimens of tuberculosis it has ever been our pleasure to see. They consisted of the heart, mesentery, and piece of lung of a cow he had destroyed, one he had been called to see on account of an abortion.

The Auditing Committee reported a balance on hand of \$283.04.

A motion was made and carried to appoint a committee of two Columbus veterinarians to watch legislation during the present session of the Legislature. The chair appointed Drs. D. S. White and T. B. Hillock.

The members agreed to meet in semi-annual session in Toledo during July, and then adjourned.

WILLIAM H. GRIBBLE, D.V.S.,
Secretary.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

THE meetings held during the month of February were very interesting and instructive. They differed from previous meetings in many respects.

Among the new members who joined the Society were: Dr. Robert

Formad, who was unanimously elected an honorary member, and Mr. Joseph Johnson, who was elected as a member of the Society.

Mr. A. Cunningham, the ex-Treasurer of the Society, made a report, and it was moved and seconded to accept the same and to extend a vote of thanks for the valuable service rendered the Society.

Mr. Hoopes was appointed as a committee to inquire into the matter of the Society certificates at Avil & Company's.

Mr. Newcomer was appointed to see to the binding of the magazines in the library which were presented to the Society by Prof. J. W. Adams.

It was moved and seconded not to send out any inquiry-sheets this year, but to let each member of the Senior Class have twelve of the inquiry-sheets.

Next in order was a mock trial. Mr. Horner was supposed to have sold a horse to Mr. A. Cunningham for \$250, the purchaser claiming that the horse was not as represented, and brought suit against Mr. Horner for \$500 damages. The participants consisted of the following: Judge of the Court, Prof. L. Pearson; attorney for plaintiff, Dr. C. J. Marshall; attorney for the defense, Dr. W. H. Hoskins; examining veterinarian, Dr. W. G. Shaw; expert examining veterinarian, Prof. S. J. J. Harger.

Witnesses for plaintiff: Mr. Kirby, Mr. Hoopes, Mr. Cornman. Witnesses for defence: Mr. Chesley, Mr. Chesney, Mr. Nolan. The jury consisted of: Mr. Miller, Mr. Jones, Mr. Newcomer, Mr. Taylor, Mr. Land, Mr. Repp.

The jury brought in a verdict of \$300 damages in favor of the plaintiff against Mr. Horner.

After the trial the members adjourned to the assembly-room, where a light lunch and smoker awaited them.

At the last meeting of the Society Mr. Atwood B. Hoskins gave a very interesting talk on pigeons. He spoke of the characteristics of the different breeds. He exhibited several specimens to show to the Society the wonderful changes from the blue-rock dove, among which were seen the jacobin, tumbler, pouter, homing or Antwerp, carrier, and fantail pigeons. Mr. Hoskins is one of the best and most extensive breeders of pigeons in this country, and undoubtedly is well versed on the subject, as was shown by the way he answered all questions which were put to him after his lecture. The short time that Mr. Hoskins was with the Society was greatly appreciated, and it was suggested that he should give the Society a talk at least once every year.

M. JACOB,
Secretary.

U. S. V. M. A.

PRESIDENT SALMON has appointed the following local Committee of Arrangements for the Omaha meeting: Dr. A. T. Peters, chairman, Lincoln; Dr. H. L. Ramaciotti, Omaha; and Dr. John Hall, Falls City, Nebraska. The committee have in part outlined the plans for entertaining all visitors, and will spare no effort to make the occasion one of comfort, pleasure, and profit.

The leading subject for discussion will probably be the all-important one of "Meat-Inspection." It is thought the discussion may be profitably considered under the following general divisions:

Reasons for conducting meat-inspection.

Methods of educating municipalities as to the sanitary importance of meat-inspection.

The necessity of consolidation of municipal abattoirs into one establishment.

Slaughter-house inspection.

Retail market inspection.

Members desiring to present papers at the coming convention should promptly notify Secretary Stewart of their intention to do so.

S. STEWART, V.S.,
Secretary.

7½ South James St., Kansas City, Kan.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this Association will be held at the Veterinary Department of the University of Pennsylvania on Tuesday and Wednesday, March 8 and 9, 1898.

The local Committee of Arrangements, consisting of Drs. Kooker, Williams, Houldsworth, Gladfelger, Walter L. Hart, and Clarence J. Marshall, have completed all the preliminary arrangements, and a luncheon will be served each day by the veterinarians of Philadelphia to all those in attendance.

Dr. M. P. Ravenel, Bacteriologist to the State Veterinary Live-stock Sanitary Board will give an illustrated lecture from 7 to 8.30 on Tuesday evening. Dr. Leonard Pearson will tender a banquet to all visiting veterinarians and the Association members at 8.30 on Tuesday evening.

From 2 to 4 P.M. of the first day a series of operations will be performed by Drs. Adams, Zuill, Harger, and Hoffman, consisting of median neurotomy, tarsal tenotomy, ovariectomy, equine and canine, and tenotomy for stringhalt.

Among the papers to be read we note one by Dr. M. E. Conard, "What our Dairy-cattle Inherit;" Dr. H. B. Felton, "Pasteurization versus Purity;" Dr. J. Curtis Michener, "Feeding Animals;" Dr. M. P. Ravenel, "Milk from a Bacteriological Standpoint;" Dr. C. J. Marshall, "What we Ought to Know About Commercial Milk;" Dr. W. S. Phillips, "Tetanus;" Dr. W. P. Phipps, "Tetanus as I Have Found it in Chester County;" Dr. S. J. J. Harger, "Lesions of Spavin;" Dr. H. P. Keely, "Eversion of the Uterus in Cows."

Papers by Drs. Francis Bridges, Charles Bland, and J. F. Butterfield; subjects to be selected. Among the applicants for membership are: Drs. Morris W. Keck, Slatington; A. N. Lushington, William G. Shaw, and John A. Pearson, of Philadelphia.

All veterinarians of the State and visitors from other States will be very cordially welcomed to our meeting, and a generous invitation is extended.

JAMES B. RAYNER, V.S.,

President.

W. L. RHOADS, D.V.S.,
Corresponding Secretary.

"Imp. Great Tom," blind, but full of years as a great sire, died at Belle Meade Farm, Nashville, Tenn., on December 15th.

PERSONALS.

Dr. J. C. McKenzie, of Rochester, N. Y., is lecturing to the horseshoers of that city and vicinity.

Dr. Jacob Wagner, of Tavistock, is a director of the Ontario Veterinary Medical Association, and is keenly interested in all matters pertaining to his profession throughout Ontario.

Dr. Leonard Pearson, State Veterinarian, addressed the Pennsylvania State Dairymen's Association, at Corry, in January.

Dr. M. E. Conard, of West Grove, addressed the Pennsylvania State Guernsey-Breeders' Association on "Parturient Apoplexy," in January.

Dr. Harry Walters, of Wilkesbarre, member of the Pennsylvania State Board of Veterinary Medical Examiners, was a visitor to Philadelphia in January.

Dr. Charles Dohan, of Darling, Pa., found much enjoyment following the hounds during the winter season.

Dr. H. D. Martien succeeds Dr. H. A. Christmann as Demonstrator of Anatomy at the Veterinary Department of the University of Pennsylvania.

Dr. M. Stalker, of Ames, Iowa, was a visitor to the East early in February, including a visit to Philadelphia and Washington.

Prof. James Law addressed the annual meeting of the New York State Breeders' Association in January.

Dr. A. T. Peters, of Lincoln, Neb., is the author of a recent bulletin for the Experiment Station of the "Blackwater State," on "Cornstalk-disease."

Dr. E. A. A. Grange lectured to the Detroit Horseshoers during the winter.

Dr. Martin has been elected Corresponding Secretary of the Toronto Master Horseshoers' Association.

The suit of Dr. J. H. Black, of St. Louis, Mo., against the Master- and Journeymen-Horseshoers for \$20,000 for injury to character and loss of reputation, was on the docket for January.

Veterinarian E. B. Ackerman, of the Brooklyn Board of Health, was a visitor to the "City of Brotherly Love" in February.

Dr. F. W. Huntington, of Portland, has been elected Secretary of the Maine Mile-Track Association.

Dr. H. P. Eves, of Wilmington, Del., has been elected a member of the Executive Committee of the Wawaset Driving Association.

Dr. M. P. Ravenel, Bacteriologist of the Pennsylvania Live-Stock Sanitary Board, addressed the Farmers' Institute at Somerset, Pa., early in February.

State Veterinarian Pearson spent three days at the Somerset County, Pa., Farmers' Institute in February. "Stable Hygiene" and "Care of the Hoof" were among the topics he considered.

Dr. E. Merillat, of Chicago, is pursuing a course in human medicine at one of the medical colleges in Toledo, Ohio.

Mr. C. E. Stubbs is the special envoy selected by Secretary Wilson to visit Europe to interest foreign countries in the value of our horses for military and domestic purposes, and to better study the most desirable type of horse used for this purpose. Mr. Stubbs presented a paper on "The American Horse" at Denver, Col., in January, before the National Stock-growers' Convention.

Dr. S. E. Weber, after a short stay among his friends in Philadelphia, returned to Lancaster the latter part of January for a short rest, preparatory to entering the Philadelphia Orthopedic Hospital.

Dr. G. Howard Davidson, of Millbrook, is Vice-President for the second district of the New York State Agricultural Association.

Prof. A. Smith, of the Ontario Veterinary College, will conduct a course of instruction for the horseshoers of the city of Toronto, Canada.

Dr. Charles Gresswell, of Denver, has an excellent article in the December number of the *Colorado Medical Journal* on "Animal Diseases Communicable to Man," delivered at the annual meeting of the State Sanitary Convention.

Dr. D. McEachran, of Montreal, Canada, crossed the ocean for a short sojourn in Europe, in January.

Prof. A. Liautard, now in Paris, France, had as his guest early in February, Prof. D. McEachran, of Montreal, Canada, and together they visited, among other famous cities of "Sunny France," the famous watering-place, Nice.

Dr. James Henderson, Secretary of the Chicago Veterinary Society, will shortly leave the United States to accept a position in Scotland.

Dr. L. C. Campbell has returned to the post of Secretaryship of the Chicago Veterinary Society.

Dr. D. P. Frame, Food-Inspector of Colorado Springs, Col., has received an appointment under the Bureau of Animal Industry, and directed to report at Kansas City for duty.

Drs. Charles Williams, S. J. J. Harger, and John A. Pearson were interested witnesses at the third hearing of the Philadelphia Board of Health on the use of glass bottles and jars for the distribution of milk.

Drs. Austin Peters, of Boston, and Leonard Pearson and W. Horace Hoskins, of Philadelphia, as invited guests, participated in the discussion of municipal meat-inspection, considered by the New York County Veterinary Medical Association, on March 3d.

Dr. Samuel S. Buckley, of College Park, Md., spent a few days in Philadelphia in February.

Dr. Harry D. Entrikin, of Kennett Square, Pa., was elected a member of Town Council in February.

Dr. B. F. Bachman, of Strasburg, Pa., was one of the organizers of the local Jersey Cattle Club formed at Lancaster in February.

Drs. L. H. Howard, of Boston; W. Horace Hoskins, of Philadelphia; Otto Faust, of Poughkeepsie, and William Herbert Lowe, of Paterson, N. J., were New York City visitors early in February, attending a preliminary meeting connected with the closing exercises of the American Veterinary College.

Dr. Alexander Glass, of Philadelphia, was a visitor to the Westminster Kennel-Club Show at Madison Square Garden, in February.

Dr. B. M. Underhill, of Media, Pa., was a visitor to the JOURNAL office in February.

Messrs. John J. Repp, of the Class of '98, C. F. Keiter, of '99, and Thomas White, of the Class of 1900, were selected as representatives of the Veterinary Department in the Washington's Birthday exercises of the University of Pennsylvania in the Academy of Music.

Dr. George Coester, the non-graduate veterinarian appointed by Governor Pingree, of Michigan, as State Veterinarian, was found ineligible owing to his not possessing a diploma from any recognized college.

Dr. W. H. Ridge, of Trevoise, Pa., was a visitor to the Western Sale-Stables, of Philadelphia, and the JOURNAL office in February.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, addressed the Farmers' Institute at Skippack in February.

City Veterinarian McNeil, of Pittsburg, entertained State Veterinarian Pearson in February.

Mr. Atwood B. Hoskins, of Glen Riddle, addressed the Students' Society of the Veterinary Department of the University of Pennsylvania upon the development of the various breeds of pigeons and their origin from the blue rock-dove. Some six or eight of the most distinct varieties were used to elucidate the wonderful changes produced in breeding.

Dr. Leonard Pearson is now a life-member of the Pennsylvania State Dairymen's Association.

Dr. George Jobson, of Franklin, Pa., will address the Pennsylvania Jersey-Cattle Club meeting the 17th of this month.

Dr. L. Breisacher, of Detroit, Mich., purchased the bay mare "Red Lawn" at the Fasig sale at Madison Square Garden in February.

NEW INVENTIONS.

A bridle-blind of metal.

A horseshoeing apparatus consisting of a framework with lever attachments by which the fore and hind limbs may be maintained in position for adjusting shoe.

A horseshoe with recessed toe and heels for the adjusting of calks.

A design of a horseshoe-calk to be bolted to heels of shoe.

A bridle-bit with two bars with looped ends, these connected with interlocking loops for straps for check-rein.

A tubular hitching-post, with chain fastened to inner part of post.

A shipping-box for animals, with an enlarged bottom and tapering sides to lid, with slats.

An improved animal-shears.

A channelled rubber-tread horseshoe, prongs along channel to retain the rubber.

A sheet-metal harness-hame.

A bottle-washing machine.

An equalizer device for regulating the gait of horses and preventing them from leaving their feet, by a frame over the shoulder connected with cords to boots on the limbs.

An animal-holding apparatus, with pivotal table and means for securing the limbs.

A horseless carriage.

A horseshoe with continuous calk on inner edge, a bead on the outer edge, with groove for placing and directing nails, which are flush with beaded edge.

THE Pennsylvania State Board of Veterinary Medical Examiners will probably hold a special meeting of the Board during March to conduct an examination of several applicants.

AN UNUSUAL OPPORTUNITY.

A practice for sale in a town of five thousand inhabitants and a good farming locality surrounding. A milk station and creamery located in the town; a good dairy country. The only registered practitioner in or near the place. Will give good reasons for selling. Address

**X, Journal Office, 3452 Ludlow St.,
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MILK-SUPPLY FROM THE BACTERIOLOGICAL STANDPOINT.

By M. P. RAVENEL, M.D.,

BACTERIOLOGIST, STATE LIVESTOCK SANITARY BOARD OF PENNSYLVANIA; INSTRUCTOR IN
BACTERIOLOGY IN VETERINARY DEPARTMENT, UNIVERSITY OF PENNSYLVANIA.

THE problem of a pure milk-supply for the people in general, and more particularly for our infant population and invalids, is unquestionably one of the most important matters of sanitation which confronts the hygienist of to-day. The enormous quantity which is used in all civilized countries attests its value as a food-medium, and if this supply is contaminated by disease-producing germs its influence for harm is enormous. In Great Britain, it is said, 250,000,000 gallons are consumed each year, while in the United States 5,209,125,567 gallons are used, an amount nearly equal to the Croton water used in the City of New York each month.

Until about the year 1870 milk was not generally considered as being capable of carrying epidemic disease, though as early as 1859 an outbreak of typhoid fever was reported, but since that time the evidence on this point is overwhelming as well as appalling. Mr. Ernest Hart gives statistics of fifty epidemics of typhoid fever, with 3500 cases; of fifteen epidemics of scarlet fever, with 800 cases; seven epidemics of diphtheria, with 500 cases. Taking up the work where Mr. Hart left off, Dr. Freeman, of New York, has collected statistics of fifty-three epidemics of typhoid fever, with 3226 cases; twenty-six of scarlet fever, with 1593 cases; eleven of diphtheria, with 501 cases; two epidemics of foot-and-mouth disease, three of throat-trouble, two of acute poisoning, and one of Asiatic cholera—in all about 736 cases. These

¹ Read at the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1898.

figures are inside of the real truth, as in many of the epidemics reported the number of cases occurring is not given.

It would be comparatively easy to outline ideal conditions for a milk-supply; but the commercial aspect of the case must also be considered, and the regulations enforced must be of a nature which will allow so important a food-product to be within the reach of the masses. An understanding of the principles on which an ideal supply could be produced, and of the dangers to which milk is exposed, will enable us to practise precautions which must tend to the betterment of the traffic as at present conducted. In giving warning of the dangers which may be incurred by the use of milk, I would not be understood as in any way opposing the use of milk as a food. On the contrary, I consider it the most perfect single food which we have, and strongly advocate its general use as a food-supply. I point out the dangers to better enable us to guard against them and to make this most valuable food still more desirable.

The proper place to begin the care of milk is unquestionably the animal that produces it, and some of the greatest dangers with to which we are exposed from the use of milk originate with the animal itself. Cows as food-producers should have most careful attention as regards their food, housing, and general surroundings. They should be under the constant supervision of a competent veterinarian, who should keep strict guard on their general health. The cows should have at least as much care as is bestowed on our horses, and yet as compared with horses the cows are usually very much neglected. The food often given is not fit even for pigs, and through the use of such refuse material bad flavors and smells not infrequently pass into the secretion, and cases of sickness have been reported on good authority from the use of such milk, although, as a rule, the senses only are offended. Many drugs also pass into the milk, and every one is aware of the garlicky odor given to the milk of cows feeding upon the wild onion.

More important, however, are the diseases to which the cow is subject, the germs of which may pass into the milk, through the secreting organ, and thus be conveyed to the consumer. Chief among these is tuberculosis, and it has recently been stated by Prof. James Long that probably more deaths occur each year from the drinking of tuberculous milk than would be caused by England's going to war with a first-class power. Without going into arguments to prove his position, I may state briefly the facts which lead up to such a conclusion. First, the tubercle bacillus has been repeatedly shown in the milk of cows having general tuberculosis,

but without perceptible disease of the udder. Second, that both by inoculation and also by ingestion of such milk tuberculosis can be produced in several of the lower animals. Third, that the disease as seen in animals and as seen in man is essentially the same and has the same origin. Fourth, that in the large majority of children dying of tuberculosis the initial lesion is in some part of the digestive tract, pointing to food as a medium of infection. Children being large consumers of milk, it is hard to escape the conclusion that it is to them a frequent source of infection.

Two other diseases may also be mentioned. Klein has shown that the diphtheria bacillus may also pass into the milk through the udder of the cow, and although his work has not been confirmed, it has never been successfully refuted. The milk of cows suffering from some inflammatory diseases of the udder has also been shown to be the cause of disease in young persons similar to, if not identical with, scarlet fever. Such an instance was the epidemic occurring at Marylebone, St. Pancras, and Hampstead, which was traced to the milk of a farm at Hendon. On examination a micrococcus was found which seemed to be the cause of the trouble.

This list, by no means complete, will serve to show the importance of guarding well the health of milch-cows. As secreted normally by a healthy cow, milk is free from bacterial life; but even in the udder it is exposed to contamination from outside influences, and from the moment of drawing, and even during drawing, it is constantly exposed to bacterial contamination of various sorts. The majority of the epidemics before mentioned have occurred by contamination of the milk during the period between the drawing and delivery to the consumer, and it is in regard to this that reforms are especially needed. Milk is a most excellent culture-medium for almost all germs, but I doubt if the rapidity of multiplication of germs is realized by most people. Freudenreich has found as many as 577,500,000 germs in a single cubic centimetre of milk kept at 25° C. for twenty-four hours, and it is not unusual to find from 33,000,000 to 56,000,000 per pint in milk as ordinarily sold. It is not a pleasant thought, yet it is nevertheless true, that milk as it reaches the consumer is usually richer in bacteria than the sewage of our great cities. For instance, Sedgwick and Batchelder report fifty-seven samples of Boston milk which contained from 30,000 to 4,220,000 per cubic centimetre. Loveland and Watson, in the milk of Middletown, Conn., found from 11,000 to 85,500,000 per cubic centimetre, while the milk of Madison, Wis., ranges from 15,000 to 2,000,000 per cubic centimetre. Sedgwick found that

the sewage of Lawrence, Mass., contained from 100,000 to 4,000,000 per cubic centimetre. Bitter puts down 50,000 germs per cubic centimetre as the maximum limit for milk fit for food, while the committee in charge of the production of "certified milk" in Buffalo sets the limit at 10,000 per cubic centimetre. The majority of these are, of course, in themselves harmless, but many of them bring about the changes in milk which render it unfit for use and injure its keeping qualities.

The chief sources of these germs are the animal itself, the hands of the milker, and the dust of the stable. Contamination from these three sources can be easily very much lessened by attention to the simplest precautions of cleanliness. The hairy coat of the animal offers exceptional opportunities for the collection of dust and dirt, which often contain feces of the animal. This becomes attached to them when lying down, and is exceptionally rich in germ-life. These germs may be almost entirely gotten rid of by keeping the udder of the cow, inside the legs, and the belly clipped; before each milking the parts should be well brushed and moistened with a wet sponge, the excess of water being wiped off. Bacteria do not rise from moist surfaces, and the moisture serves to hold in place those germs which have escaped the brushing. In an experiment tried by Prof. Russell, of the University of Wisconsin, it was found that where a cow was milked without any special precautions, 5250 germs per minute were deposited upon an area equal to the exposed top of a ten-inch milkpail. Where precautions similar to the above were taken only 115 germs per minute were deposited upon the same area. In a plate exposed at a short distance from the cow, as a control experiment, only sixty-five germs per minute were deposited.

The hands of the milker and his clothing are also frequent sources of contamination. The hands should be carefully washed with soap and water, and a special garment, such as a blouse, or what is known as the ordinary "linen duster," should be put on just before milking. These should, of course, be frequently laundered.

The fore-milk has also great effect on the germ-contents of the entire milk. From the conformation of the teat, the milk-duct is open to the atmosphere, so that particles of filth may almost directly carry their germ-life to the milk-duct. Here they have suitable culture-media, and the warmth of the animal to facilitate growth, and though the number of species is generally small the fore-milk is usually rich in bacterial life. In one instance Prof. Russell found in the fore-milk 2800 germs per cubic centimetre, while the average of the total yield was only 330. The lesson is obvious;

the fore-milk should be discarded, and especially to be deprecated is the too common habit of using the fore-milk to lubricate the hands and teat of the cow to facilitate milking. If a lubricant is needed a small amount of vaseline should be used, which has the additional advantage of retaining any germs with which it may come in contact.

For the prevention of contamination through dust in the stable, it would be better to have a separate milking-room kept exclusively for that purpose; but where this is not possible, much can be done by keeping the stable clean, and by avoiding the stirring up of any dust through the feeding of hay, cornstalks, or dry food of any sort just before milking. As soon as the milk is drawn it should be removed from the stable and rapidly filtered, aerated, and cooled. During these processes, as well as during any after-operation in the whole process of handling milk two conditions should be fulfilled as nearly as possible: the exclusion of dust and the maintenance of a low temperature. It would seem almost unnecessary to urge the use of clean dairy utensils, and yet, unfortunately, it is necessary so to do. The water with which they are washed is often richly seeded with germs and not infrequently befouled by barnyard sewage. Several epidemics of typhoid fever have been directly traced to the washing of milk-cans in water which was contaminated by typhoid fever discharges. The vessels should be exposed to boiling water or to steam for at least five minutes, or if this is not practicable to water at a lower temperature for as much as twenty minutes.

In no case should the temperature of the water be below 160° F., and the more nearly it approaches the boiling-point the better. This temperature kept up for twenty minutes is certainly fatal to all forms of disease-producing germs, including the tubercle bacillus, except those few which are spore-bearing, such as the anthrax and tetanus bacilli.¹

¹ THERMAL DEATH-POINT OF SOME OF THE MOST IMPORTANT GERMS.

Sternberg's Manual of Bacteriology.

	Time of Exposure.
Bacillus of diphtheria, 58° C.	10 minutes.
" glanders, 55° C.	10 "
" typhoid fever, 56° C.	10 "
Diplococcus of pneumonia, 52° C.	10 "
Spirillum of Asiatic cholera, 52° C.	4 "
Bacillus coli communis, 60° C.	10 "
" acidi. lactici, 56° C.	10 "
Styphylcoccus pyogenes aureus, 58° C.	10 "
" " albus, 62° C.	10 "
Streptococcus pyogenes, 54° C.	10 "

Forster: Quoted by Russell.

Bacillus of tuberculosis, 65° C.	30 minutes.
" " 68° C.	15 "
" " 75° C.	10 "

A study of milk-epidemics reveals another important fact, that in many of them the milk was seeded with the germs of the disease by being handled in the dwelling-house of the dairyman. The obvious lesson from this is that the milk should be handled entirely in a building kept solely for that purpose. When once seeded with bacteria the most important point in the multiplication of the germs is the influence of temperature—a low temperature inhibiting or preventing their growth, while a temperature slightly below that of the body being most favorable to the development of the majority of germs found in milk. One of the great difficulties in obtaining good milk in large cities is the distance between the dairy-farm and the city, so that it is difficult to obtain milk which is not at least twenty-four hours old, and is frequently thirty-six to forty-eight hours old. For this reason, and for the reason that it is practically impossible to maintain milk at a low temperature during so long a time, including the long railroad journey, I advocate strongly pasteurization¹ of milk on the farm. This is considered unnecessary by some, who advocate the utmost care in handling as a substitute, but when it is remembered that in dairies where the utmost precautions are observed under the most careful management, and where the average number of germs does not exceed 3000 to 5000 per cubic centimetre, the number will occasionally reach as high as 200,000 per cubic centimetre, it will be seen that nothing can take the place entirely of pasteurization or sterilization. It should be remembered, however, that sterilization cannot make a bad milk good. It may indeed destroy its infecting power, and to a certain extent the poisonous products formed by bacterial life, but not entirely. Consequently, the sterilization is best done immediately after withdrawing, the milk being put into sealed glass jars preferably, after which it may be kept without injury almost indefinitely. Where pasteurization is practised the good effects are retained only when the milk is rapidly cooled

¹ The terms pasteurization and sterilization are not used as synonymous. Pasteurization is an incomplete or partial sterilization, the degree of heat employed being sufficient to kill all pathogenic germs except those bearing spores, and also the great majority of those which bring about lactic acid fermentation. In practice, as applied to milk, the degree of heat to be used is limited by the production of the "boiled milk" taste, which becomes permanent at about 70° C. (158° F.); while, on the other hand, it must be sufficient to kill the tubercle bacillus, which is the most resistant of the disease-producing germs likely to be found in milk. This bacillus is killed by a temperature of 68.3° C. (155° F.) after an exposure of fifteen minutes; hence, for perfect safety, we heat the milk to 70° C. for twenty minutes. As some spores survive this process, the milk must be cooled, and kept cool subsequently, to prevent their development.

By sterilization is meant the complete destruction of germ-life. This is effected by exposure to the boiling temperature, or even to steam under pressure. Milk so treated will remain sweet indefinitely, even at high temperatures.

and kept cool, and experiment has shown that the temperature should be below 10° C. (50° F.).

Where it is impossible to pasteurize on the farm the milk may be sent in bulk as rapidly as possible to a central station in the city, and there be bottled and pasteurized. The use of the glass jar in the delivery of milk seems to me a great advance over the old system of can-delivery. The constant opening of the large milk-can on the street in all sorts of weather, the atmosphere being often laden with dust made up largely of the droppings of animals on the streets, and containing myriads of fermentative and putrefactive bacteria, offers a constant source of contamination to the milk, which becomes worse and worse at each opening. While there are theoretical dangers in the use of bottles, due to their being carried into the sick-room, and then being imperfectly sterilized before being used again, the experience with them has been most satisfactory, and I have not been able to find a single instance in which disease could be attributed to the use of bottled milk. On this point I am told, by probably the most advanced dairyman in this country, that in an experience extending over twelve years, in which he has made the milk-supply for invalids and for children a specialty, although he sends out from 8000 to 10,000 bottles of milk each day, he has yet to hear of the first instance of the spread of disease from one room to another, or from one nursery to another—certainly very strong evidence in favor of the bottle.

To sum up: milk should be delivered to the consumer in as nearly normal condition as possible. This is attained by the proper care of the cow on the lines laid down, care of the milker as regards his person and clothing, and care of the milk after being drawn. In one word, cleanliness in all things is the secret of a good milk-supply, and if this can be strictly observed such artificial aids as pasteurization are not so necessary. In actual practice, however, I believe that pasteurization will give the best results.

WHY COWS FAIL TO BREED, AND WHAT TO DO WITH THEM.

BY GEORGE B. JOBSON, V.S.,

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THE subject which your worthy President has assigned to me, and which he has put in the form of a question, "Why cows fail

¹ Read at the annual meeting of the Pennsylvania Jersey Cattle-Breeders' Association, March, 1898.

to breed, and what to do with them?" is in many respects a difficult question to answer, and one to which it is impossible to give a direct categorical reply. You will understand why this is so when I say that sterility does not always assume the same form, may result from various causes, and that these causes are frequently obscure and difficult of diagnosis. A disordered condition of the procreative organs, proceeding from disease, malformation of these organs, or it may be causes extraneous to the individual female, may result in barrenness, and as there is no one particular form of this disease (for such it may be termed), so there cannot be any specific remedy. However, it matters not what may be the cause of barrenness, there is no gainsaying the fact that the loss caused by the failure of some particularly choice cows to breed is one of the most annoying to which the breeder of high-bred stock is subjected.

Highly bred, pampered cows, getting little or no exercise, and a liberal allowance of grain, will not prove as sure breeders as the ordinary run of farmers' cattle. Yet it is sometimes a difficult matter to get those in charge of a herd to understand the necessity for giving dairy cattle exercise during winter; they will tell you turning them out makes them look rough; that there will be a falling off in the milk-supply, and give you sundry reasons, satisfactory, at least, to themselves, why they are much better off shut up in the stable than turned out for exercise. Supposing we admit that cows turned out in winter do look a little rougher in the coat than those which are closely shut up in a warm stable, or that they may give a little less milk, this is more than compensated in the better health of the herd, and I will state right here that some of the Jersey cows which have made the largest yearly milk records were regularly exercised by being led one mile daily in winter, oftentimes in the very roughest kind of weather.

Where failure to conceive results from obesity and want of exercise, the remedy is obvious: shut off the supply of grain and turn the cow out regularly every day; while an occasional purgative of sulphate of magnesia will prove beneficial in ridding the system of the superfluous fat. Of course, where there is complete fatty degeneration of the uterine appendages there can be no remedy; but where, as is more usually the case in young cows, there is only fatty infiltration of the cells of the ovaries and walls of the Fallopian tubes, leading to inactivity of the former organs, and blocking or occlusion of the tubes, the excessive deposition of fat can be reduced by letting your cows rough it in winter, and in summer turning them out on bare pasture.

A herd the members of which are closely inbred is likely to have more barren females than one having frequent and strong outcrosses. Take, for example, the Bates Shorthorn herd, the Duchess family of which was notoriously inbred, a large percentage of which proved non-breeders or failed to produce living offspring. Should you wish to intensify certain characteristics by resorting to inbreeding, and where certain cows fail to conceive when mated with a bull raised in the same herd and closely related to them in blood, if you do not wish to use an outcross, get an animal from a distance, bred in collateral lines, the difference in soil and climate in two or three generations so changing the constitution that you will get precisely the same results as from an outcross. The cause in this case is really extraneous and not inherent in the cow, she proving fertile by a change in mating. We might take another case where the cow is not at fault. Probably you have an old bull which has made a splendid record as a producer of great buttercows, and you may have reserved him to put to a few of your choicest females, yet to your disappointment they fail to breed, showing that his procreative powers are on the wane through age and, probably, over-service. The trouble in this case proceeds from seminal weakness or want of vitality in the spermatozoa of the male, and its failure to properly impregnate or vitalize the ovulum of the female. This defect can sometimes be overcome by using tonics adapted to the generative organs of the male, such as the preparations of phosphorus, iron, etc. A very good prescription given me by a medical friend, and which has been used with good effect on bulls and stallions, is :

R.—Pyrophosphate of iron	.	.	.	.	.	℥jss
Phosphide of zinc	.	.	.	.	.	grs. xlviij
Nux vomica	.	.	.	.	.	℥j

Mix and divide into twenty-four powders. Give one powder three times a day in feed.

I have alluded to diseases of the procreative organs causing sterility. We will consider a few of the more common forms of these uterine diseases. A retained placenta or after-birth, when not removed within a day or two after calving, will prevent conception, either from the fetid, sanious discharge consequent on the placental membranes being allowed to rot away piecemeal, causing irritative inflammation of the uterus and vagina, or it may drift on to leucorrhœa. In either case, or where leucorrhœa is the result of injuries received during parturition, a good remedy for this morbid condition of the organs is creolin (one part to one hundred parts of

water), which makes a good antiseptic wash, and not so irritating as carbolic acid. Irrigate the womb with this thoroughly once a day. Use a syringe with a piece of rubber tubing, bare your arm, wet it with the creolin solution (which ought to be about blood-heat), put your hand into the vagina, making sure the tubing of the syringe enters the womb, and use a liberal amount of the wash. As the discharges in leucorrhœa are acid, and the spermatozoa will not live in an acid medium, it is very good practice to use a solution of borax (one-half ounce to one quart of warm water) following the creolin wash. A course of iron and bitter tonics ought also to be given internally.

Occlusion or closure of the mouth and neck of the uterus renders conception mechanically impossible, the semen of the male failing to enter and fertilize the ovum. This may be spasmodic, but more frequently is the sequel to an injury to these parts received during parturition. Various devices in the shape of dilators have been invented to overcome this difficulty. One of the simplest and safest methods is to bare the arm, pare the nails to prevent wounding the parts, smear the hand and arm with a little lard or vaseline, and use the index-finger as a dilator. The insertion of the finger full length is all that is necessary. Should it be so firmly closed that it is impossible to enter the finger, smear the mouth of the womb with a little belladonna ointment and try again after a few hours. In performing this operation, always go slowly and take plenty of time, the fibres of the mouth being very resistant and almost cartilaginous, and should you tear the parts adhesive inflammation takes place in healing, leaving the parts in worse condition than at first. I have used with good effect tents made out of sea-tangle, or what is preferable, made out of soft, porous wood thoroughly dried. After insertion the moisture from the parts causes the tent to swell and act as a dilator. These tents were inserted into the neck of the womb two or three days before we expected the cow to come in heat, were allowed to remain in all night, and after being removed a warm alkaline wash of borax or soda was used to allay any irritation caused by the introduction of the tent until the cow came in heat.

Some stock-owners follow the very reprehensible practice of breeding large and vigorous bulls to undersized heifers. This is frequently productive of injury to the mouth of the womb, followed by induration. Instances have occurred where heifers have been injured in the back and limbs, and the point of the hip knocked down by being thrown violently to the ground.

Ovarian dropsy or tubercular deposits in both ovaries will prevent conception, while a cow with tubercular disease of the uterus, the ovaries not being infected, may conceive, but will surely abort. Where a bull is used on a cow in this condition there is great danger of him conveying the disease to other cows. In fact, a cow which frequently aborts ought always to be viewed with suspicion, and, even if there are no visible signs of disease, the safer way is to destroy her.

Occasionally cows will come in heat, take the bull, miss one or two periods, and then come in heat again. These I believe are in some cases really abortions. I recollect picking up behind a cow six weeks in calf a foetus about the size of a very small newly-hatched sparrow. Had this happened out of doors, or had it been dropped in the manure, it would have passed unnoticed, as there was no discharge from the vagina or other visible signs of disturbance. In cases such as these fluid extract of blackhaw (*viburnum prunifolium*) will prove useful in doses of from a half to one ounce daily for three or four weeks, it being a most excellent uterine tonic.

A cow which has aborted ought immediately to be separated from the herd, irrigated thoroughly with the creolin solution once a day for at least one week, and until all vaginal discharge has ceased, before being again served by the bull or allowed to mix with the herd.

I have referred to malformation of the procreative organs being a cause of sterility. This rarely occurs except where a heifer is twin sister to a bull. In these instances the female is barren, the internal organs being usually hermaphrodite and not properly formed. In the beef breeds they somewhat resemble steers about the head and neck; in the Jersey breed less so, and except it may be a very small and contracted vagina, there may be no outward indications of anything abnormal.

In reviewing the whole question it may be stated as an axiom that the more artificially cattle are kept, and the more we diverge from nature's methods, the larger will be the percentage of barren animals. We find it so in all the varieties of the domesticated animals. My lady's lazy, fat canine pet, as well as prize swine, sheep, and cattle, overfed and kept for purposes of exhibition, will not prove as sure breeders as those kept under more natural conditions. If we transgress nature's laws to any extent, in this or any other respect, we must pay the penalty. Neither, on the other hand, is the starvation system, pursued during winter by too many

farmers, advocated, whereby dairy cows are so much reduced in condition that it takes a large part of summer for them to recuperate and recover lost ground, but that happy medium and system of management which, combined with a rational system of breeding, will give each individual member of the herd a vigorous constitution. Follow the rules of hygiene in your stables, give plenty of ventilation, plenty of light, admitting all the sunlight possible; keep the cattle and stalls clean, white-washing the latter frequently; give an abundance of pure water and a moderate allowance of food, turning the cattle out daily for exercise; and lastly, by all means do not heat your stables with steam; many stock-owners have done so to their sorrow, and paid the penalty in the weakened vitality of their stock. Above all things, a good dairy cow must have a strong constitution to stand the double drain on her system of producing offspring and giving a large yield of milk; therefore, do not adopt a systematic course of continued in-breeding, do not breed from immature animals, nor from animals in their decadence, and do not breed from animals below par, which are weak in constitution and obviously lacking in vital stamina, however rich in blood, or however well bred they may be. Get rid of these at the earliest opportunity, and let the other fellow have the blood.

If you adopt the methods which I have recommended relative to the hygiene of the herd and keeping the cow-stable in sanitary condition, weeding out all inferior animals, irrespective of their breeding, your herd will be comparatively free from disease; you will have little trouble with barren cows or abortions, and your herd will be a source of satisfaction to yourself and a credit to your system of management.

ETIOLOGY OF EPIZOÖTIC ABORTION.¹

BY S. J. J. HARGER, V.M.D.,

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UNFORTUNATELY, the government and the support given to American veterinary schools are such that the bacteriologic investigation of infectious diseases can be made only under considerable disadvantages, and then frequently must their experimental study be made at the personal expense of the investigator. Thus we are frequently obliged, and often with a sense of chagrin, to be de-

¹ Read before the Veterinary Medical Society, University of Pennsylvania.

pendent upon every possible source in order to supply ourselves with the desired information. One of the diseases which may be placed in this category is epizoötic abortion.

This disease is of much interest to the breeder and the farmer. It entails on them much loss, since, when once it has been introduced into a stable, it goes through the entire herd. It has for a long time been generally accepted that the disease is specific—contagious; but as to the identity of the causative agent we possess little or no definite knowledge. As bacteriology is being more generally applied, the causes of contagious diseases become less obscure. Numerous treatises upon the disease in question have from time to time appeared in print, and among the most interesting and conclusive, although, perhaps, not absolutely so, because we are often too much inclined to be enthusiastic over what is new, must be mentioned that of Bang, of Copenhagen.

It has been known for a long time that the introduction into the vagina of healthy pregnant cows of the vaginal contents of cows that have aborted will cause abortion in the former. The Minister of Agriculture of France in 1885 authorized M. Nocard to make a special investigation of epizoötic abortion in cows, which was then very prevalent. Nocard's conclusion indicated that epizoötic abortion was a bacteridian disease of the fœtus and its envelopes. Two different kinds of microbes were found between the uterus and the embryo: a micrococcus disposed in chains of twos and fives, and a short, thick bacillus isolated or associated in pairs. However, the specific rôle of these microbes was not proved, and the inoculation with their cultures of pregnant cows did not induce abortion.¹

The researches of Bang were more conclusive. A five-year-old cow, served May 21, 1895, was purchased December 19th, and since the 15th of the same month had shown some symptoms of epizoötic abortion, which existed on this farm. She was killed, the genital organs were removed, and an elastic ligature placed around the vagina. The exterior of these organs was normal, the os uteri firmly closed, and the cervix filled with a thick, normal mucus. Between the uterine mucous membrane and the embryo (chorion) was found a straw-colored, mucous, grumous, odorless, abundant exudate of alkaline reaction; in some places it was semi-solid. Placed in a test-tube, this exudate separated into two strata: an upper, serous, cloudy, and yellowish-red; a lower, thick, and yel-

¹ Revue Vet., December, 1897, Etiologie de d'avortement Epizootique.

lowish-gray. Underneath the chorion was a clear, gelatinous fluid mixed with very fine membranes, due to an œdematous infiltration of the thin connective-tissue layer between the chorion and the allantoid. The allantoid fluid was normal, excepting small clots held in suspension; amniotic fluid normal, and the umbilical cord œdematous. The foetus was seven months old, and normal, excepting congestion of the intestines and a small quantity of bloody serum in the peritoneal cavity.

Methylene-blue demonstrated the presence of a large number of small bacteria in the straw-colored exudate, appearing isolated or in dense masses, surrounded by large cells. Most of these organisms in masses were micrococci; those appearing singly were elongated, oval, and under a high-magnifying power were recognized as small immobile bacilli containing one, two, and three rounded granules; they stained easily with anilin. A few bacteria were found in the blood of the foetus, none in the subchorial œdema, and in the intestinal contents many granules that stained, but could not be recognized as bacteria.

From these lesions it would appear that epizootic abortion is a specific uterine catarrh, caused by a specific bacterium. The uterine exudate, containing epithelial cells, pus, and detritus, is constant, and at the time of abortion, immediately afterward or sometimes before, is discharged from the vagina as a more or less abundant liquid, mucus, purulent, grumous, pale-red, and it can be distinguished from that of a metritis by being odorless and appearing immediately after parturition.

Cultures upon serum-gelatin-agar showed in two days in one tube, and in four days in another, small colonies in the form of a zone about 5 mm. from the free surface and 10 to 15 mm. in thickness. These microbes are, therefore, not aërobic, nor yet exactly anaërobic, but rather have a peculiar intermediary position; the inferior limit of the zone of growth corresponds to the superior limit of a strictly anaërobic bacterium. The colonies are small, round, punctiform, the largest equalling a pinhead. They consist of bacilli similar to those found in the uterine exudate. Upon bouillon, with 5 per cent. glycerin, and upon pure, liquid serum, the cultures were small; upon agar-gelatin, unsuccessful. Cultures supplied with oxygen by means of a solution of pyrogallol remain sterile. Their growth close to the surface of the agar-serum shows that they require oxygen, but in less abundance than is supplied by atmospheric air; they grow in oxygen in the proportion of 21 per cent. of that contained in the atmospheric air. For

other bacteriologic characters I must refer you to the original laboratory work.

Through the kindness of other veterinarians the uterine material, consisting of portions of the afterbirth, removed immediately after delivery, with the hand, as well as the uterine exudate, was procured from twenty-one cases of abortion. In every instance the conditions were identical as to the exudate, which was sometimes mixed with blood, as well as the subchorial cedema; the chorial vessels were injected, and the cotyledons congested and sometimes hemorrhagic or of a yellowish-gray coloration.

The examination of the exudate in all cases demonstrated the presence of the characteristic bacillus, singly or aggregated in groups. Their number varied, sometimes very numerous, sometimes difficult of detection. Other forms of microbes may enter the uterus from the exterior, but pure cultures of the specific bacillus could always be discovered. In three fœtuses pure cultures, without any trace of foreign microbes, were obtained from the intestinal contents. In one fœtus, five months old, pure cultures were obtained from the blood; in another the result was negative; the medulla oblongata, the fourth stomach, and the intestines in one case also gave pure cultures of the bacillus. In two cases in which the fœtus was mummified and not expelled, the uterus contained the bacillus, and pure cultures were obtained.

The bacillus possesses great vitality. The uterine exudate, collected in a sterilized flask and placed in an ice-refrigerator for seven months, still gave pure cultures. This may account for the fact that a cow aborting once has a tendency to do so the second time, unless the uterus is thoroughly cleansed.

An English commission (Woodhead, Aitken, McFadyean, and Campbell) proved that the period of incubation is from five to ten weeks, and in four cases pure cultures of the bacillus having been introduced into the vagina, there was no result in nineteen, twenty-nine, thirty-three, and thirty-five days afterward, respectively.

Experiments 1 and 2.—Two pregnant cows were purchased from an establishment where the disease was unknown: one four years old, and served January 14th; the other seven years old, and served January 16th. April 14th a considerable quantity of pure bacilli-cultures introduced into the anterior part of the vagina by means of a pipette. After five weeks there was no result, and May 23d and June 4th the injections were repeated. On June 23d signs of abortion appeared in both cows, and the four-year-old

aborted the next day; the uterine exudate contained the bacillus. The other subject was destroyed the same day, and bacilli-cultures were obtained from the exudate on the uterine surface. In these cases the period of incubation was ten weeks.

Experiment 3.—A cow, pregnant since January 19th, was given a vaginal injection of pure bacilli-cultures. A small calf was born at full term, but it became affected with diarrhœa, and in two weeks had to be destroyed. At the time of parturition the cow discharged a reddish, purulent secretion containing the bacillus. The membranes were œdematous, and a metritis followed. There evidently existed here a uterine catarrh, but the period of incubation was unusually long.

Sheep: In ovine species epizoötic abortion is not as frequent as in cows, but it does exist. It is attributed to a septic infection from the litter, and has been seen on farms where the disease existed in cows. It has been produced by injecting into the vagina the vaginal contents of a cow which had aborted.

Experiment 4.—A ewe, pregnant since November 7th, received a vaginal injection of pure cultures January 29th following. After 147 days, a few days before full term, two healthy lambs were born. Upon the chorion and the congested cotyledons was found an exudate which contained the specific bacillus. Parturition was a little premature, and the period of incubation was sixty-four days.

Experiment 5.—A second ewe, pregnant since November 11th, was treated in the same manner, and was destroyed April 3d. The uterus contained two lambs; the embryo was covered with a small quantity of exudate not containing the bacillus. The bacillus introduced into the vagina, therefore does not always enter the uterus.

Experiment 6.—Eighteen cc. of a culture were injected into the jugular vein of a pregnant ewe. The next day the symptoms were fever, difficult respiration, and loss of appetite. Twelve days afterward were born two small lambs which developed normally. The foetal membranes were œdematous, and showed the presence of the bacillus in abundance. The bacillus can, therefore, enter the uterus through the circulation.

Experiment 7.—A pregnant ewe, having a wound on a posterior member, received 8 c.c. of culture into the jugular vein, and on the seventh day threw a lamb of almost four pounds. The only symptom was a rise of temperature. Three days after parturition the female died from pleurisy and peritonitis. The membranes showed the specific bacillus.

Experiment 8.—A mare, eight years old and in foal, received an injection of the cultures of the bacillus into the jugular vein. The only consecutive symptom was a rise of temperature. She foaled in twenty-eight days; the foal died the following day from atelectasis—non-inflation of the lungs. The uterine exudate contained the specific bacillus and reproduced cultures.

These experiments aim to prove that epizootic abortion in the mare is due to the same cause as that in cows, and that there is a probability of contagion between the disease in the cow and the ewe. It is said that goats have aborted before term in stables in which cows were suffering from abortion at the time.

The microbe may enter the uterus through the circulatory system or by the genital passages; nothing is known upon this point as to the respiratory and digestive tracts. The infection of the female may take place in the field in which abortion has occurred.

A cow which has aborted has a tendency to do so again the following two years; but each year this tendency diminishes, and unless new cows are introduced into a herd the disease has a tendency to exterminate itself. Each year the abortion takes place later during gestation. Sometimes the following year the animal remains pregnant. The animal seems to acquire immunity in a few years. Primipara are those most frequently affected.

Again, we must not lose sight of the bull in the transmission of the disease. It may be transmitted by means of a specific urethritis in the same manner as gonorrhœa. Instances have been known where the introduction of a bull, or serving the cows by the bull of a neighboring farm, has been closely followed by an outbreak of this disease.

The prophylactic treatment consists in isolation, the usual antiseptics of the genital passages, and disinfection of the stable. The carbolic-acid treatment seems to have given excellent results exclusive of the fact that the disease tends to exterminate itself in time. Ten c.c. of a 2-per cent. solution of carbolic acid are given hypodermically every two weeks until five doses are given. This treatment has immediately arrested the disease, not one animal aborting afterward.

Another treatment which now suggests itself is the use of anti-toxin of epizootic abortion, the healthy animals being injected as soon as the presence of the disease is recognized.

MODIFIED MILK FOR YOUNG ANIMALS.¹

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MILK from all mammalians in its pure state contains the following ingredients: water, casein, albumin, fat, sugar, and salts—the salts being made up of sodium, potassium, chlorine, calcium, phosphoric acid, sulphuric acid, ferric oxide, and a trace of silica. Nature has arranged the proportion of these ingredients in the milk of the different species of animals in the manner best adapted to the need of the young of each particular species. The arrangement is interesting to us, for the reason that it often becomes necessary to substitute the milk of one species for that of another in feeding young animals.

We have, perhaps, all experienced trouble in trying to raise lambs, colts, and puppies on cow's milk. When troubles arise, fats are blamed, and milk less rich in fat is substituted, and perhaps sugar is added, not so much for its physical action as to tempt the animal's appetite. Work in this line is usually done in an empirical manner, and frequently results in the death of the animal. The medical profession have recognized this fact in regulating the feeding of babies. The specialist on children's diseases at the present time must be thoroughly familiar with all the constituents of milk, and be able when necessary to direct how the arrangement of these ingredients in cow's milk may be changed in order to make it as near like the mother's milk as possible. This is very convenient where the prescription or directions can be sent to a laboratory, where every facility is at hand for carrying on this kind of work.

Unfortunately, our clients do not live near enough to such conveniences to make it practicable for us. Yet, with a little study, and calculation from the following table, much good might be accomplished on our part in directing the modification of milk so that it will be suitable for the different species for which we have to prescribe.

This table was prepared by König as a result of his own experiments, combined with those of Pfeiffer, Biehl, and Fleischman.

¹ Read at the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1898.

This table differs slightly from the one found in Smith's *Physiology*, but is more recent:

	Water.	Casein.	Albumen.	Fat.	Sugar.	Salts.
Woman	87.2	0.59	1.23	3.94	6.23	.45
Cow	87.24	2.88	.53	3.65	4.81	.70
Goat	87.33	3.01	.51	3.94	4.39	.82
Sheep	81.31	5.28	1.03	6.83	4.73	.82
Mare	91.	1.32	.67	1.18	5.31	.43
Ass	89.64	.67	1.55	1.64	5.99	.51
Llama	86.55	3.	.90	3.15	5.06	.80
Camel	86.57	..	..	3.07	5.59	.77
Bitch	75.44	6.10	5.05	9.57	3.09	.73

The important food-constituents are found in the proteids, the fats, and the sugars. It is not only necessary that these constituents should exist in the milk, but they should be present in nearly the same proportion found in milk from the mother of the young animal upon which we desire to practice artificial feeding. These constituents should resemble those of the mother's milk both in their chemical properties and in their behavior to the digestive fluids. In infant-feeding it has been found useless to add substances foreign to the mother's milk, as starch, for instance. For artificial feeding, cow's milk is the most convenient substitute. We find it contains all the constituents, but not in the right proportion.

In order to modify cow's milk intelligently we must consider to what extent these constituents exist in the different ages and forms of cow's milk. As it comes from the cow, milk usually shows a double reaction, both alkaline and acid. But on standing a short time it becomes acid, due to lactic-acid fermentation. As a rule, it is said that fresh milk from herbivorous animals is alkaline in reaction, while that from the carnivora is acid.

If cow's milk that shows 4 per cent. fat when fresh is allowed to stand six hours in ice-water, cream will rise by gravitation. This cream, if removed and tested, will show 12 per cent. fat, while the under-milk, or skim-milk, will yield 2 per cent. of fat. If the same milk were allowed to stand in ice-water for twelve hours, 16 per cent. of cream would be obtained, which cream is the richest in fat that can be obtained by the gravity method. If the separator be used, it is possible to obtain cream containing a maximum of 48 per cent. fat, with but a slight trace of fat in the separator-milk. By either method the proportion of proteids and sugars is but slightly altered. 32 per cent. cream contains 3.40 per cent. sugar and 2.90 per cent. proteids. 16 per cent. cream contains

4.20 per cent. sugar and 3.60 per cent. proteids. 8 per cent. cream contains 4.40 per cent. sugar and 3.90 per cent. proteids. We see by this that as the percentage of cream decreases the percentage of sugar and proteids increases, and milk minus the fats is still rich in proteids and sugars.

The inorganic salts in milk are nearly constant, and so far no attempt has been made to modify their proportions. The proteids and sugar in milk are of just as much consequence as the fats, and perhaps more. In feeding children it is requisite that the percentage of proteids in the milk as modified approximate the standard to within one-fourth of 1 per cent. If we desire to raise the percentage of proteids above the value found in cow's milk, it becomes necessary to get it from some other source. The white of an egg has been found to answer the purpose, and can be considered as 100 per cent. albumin. When too low in sugar, milk-sugar is found the best substitute. If any or all of these constituents exist in too high a percentage, water may be added, knowing, of course, that adding half water will reduce the constituents by half.

Gravity-skimmed milk, which contains 2 per cent. of fat is too rich in fats for a colt, while gravity cream, which is about 10 per cent. fat, is very little too rich in fats for a puppy.

We must also consider the age of the infant for which we are prescribing. In human practice it has been found that for the first three days a child should have no proteids or fats in artificial feeding, hence a 5 per cent. solution of sugar in water is used. For the next week the sugar is increased, and six-tenths of 1 per cent. of proteids are added. At from six to nine months old the sugar is increased to 7 per cent. Then it is gradually decreased till the age of about eighteen months, when whole milk is used. The percentage of fats and proteids is not prescribed higher than 4 per cent. So far no substitute has been found for colostrum. It is known that this milk is rich in broken-down epithelial cells. A solution of sugar in water is found to be its best substitute.

You might wonder what the symptoms are when the fats, sugar, and proteids are fed in improper proportions. Much can be learned on this subject. To Rotch belongs the chief honor of adapting a scientific system of using modified milk. It has been used quite extensively in the larger cities for private feeding, and in children's hospitals.

The Walker-Gordon Laboratory Company, which have laboratories in several of the principal cities of the United States, is the only firm that has made extensive practical application of a truly

scientific method of producing modified milk. It has been observed in feeding children that the gain in weight is apt to be slow when a deficiency of sugar is used. The excess of sugar causes the most trouble, which is usually indicated by frequent colics; thin, green, very acid stools; eructation of gases from the stomach, and regurgitation of small quantities of food. An excess of fats is indicated by regurgitation of small quantities of sour food an hour or two after feeding; frequent passages from the bowels, which are quite normal in appearance, but sometimes contain small lumps resembling casein, but which really are masses of fat. It rarely causes colic. A deficiency in fats usually results in constipation with dry, hard stools. It has not been found advisable to increase the fats above normal to overcome this trouble. Frequent colics, curds in the stools, diarrhœa, more often constipation, are usually indications of an excess of proteids; while a deficiency in proteids interferes with the growth of the infant.

A little ingenuity and knowledge of mathematics is required to change the ingredients in cow's milk so that it will be theoretically and practically similar in composition to the milk which we desire to imitate. We will note the changes necessary to modify cow's milk so that it will be suitable for a colt, lamb, or puppy:

	Cow.	Sheep.	Bitch.	Mare.
Proteids	3.41	6.31	11.15	1.99
Fats	3.65	6.83	9.57	1.18
Sugars	4.81	4.73	3.09	5.31

The *modus operandi* of modifying milk can be best illustrated by the solution of a few practical problems. Suppose it is required to modify skim-milk so that it will be suitable for a lamb. We have available for this purpose 16 per cent. cream, skim-milk, sugar of milk, egg-albumin, and water. We will first make the calculation for determination of the fats. Sheep's milk should contain 6.83 per cent. fat. Suppose we wish to prepare forty ounces of modified milk at one time. It should contain 6.83 per cent. of 40 ounces or 2.73 ounces of fat. How can we mix 2 per cent. skim-milk and 16 per cent. cream so that the mixture will contain 2.73 ounces of fat? Let x = quantity of skin-milk, and $40 - x$ = quantity of 16 per cent. cream.

The x ounces of skim-milk will contain $\frac{2x}{100}$ ounces of fat, and
 $40 - x$ ounces of cream will contain $\frac{16(40 - x)}{100}$ ounces of fat,

and together they will contain the sum of $\frac{2x - 16(40 - x)}{100} = 2.73$.

$$\begin{aligned} 2x - 640 - 16x &= 273 \\ 14x &= 367 \\ x &= 26\frac{3}{14} \end{aligned}$$

So if we mix $26\frac{3}{14}$ ounces of skim-milk containing 2 per cent. of fat and $13\frac{1}{14}$ ounces of cream containing 16 per cent. of fat, we will have 40 ounces of mixture which will contain the same percentage of fat as does sheep's milk. Sheep's milk should contain 6.31 per cent. of proteids. The 40 ounces must contain 6.31 per cent. of 40 ounces, or 2.52 ounces of proteids.

Skim-milk contains about 4 per cent. proteids; so $26\frac{3}{14}$ ounces would contain 4 per cent. of $26\frac{3}{14}$ ounces of 1.05 ounces of proteids. 16 per cent. cream contains 3.6 per cent. proteids, then $13\frac{1}{14}$ ounces of cream would contain 3.6 per cent. of $13\frac{1}{14}$ ounces, or 1.50 ounces of proteids. We have then added the sum of 1.05 and .50 or 1.55 ounces of proteids. We must then add the difference between 2.52 and 1.55 ounces or .97 of an ounce of proteids, which is practically one ounce. The white of an egg weighs about one ounce, so we can add the white of one egg. The sugar is already within 0.1 per cent. correct, which is near enough. Our prescription will then read thus: *Rx.*—Cream, 16 per cent. fat, 14 ounces; skim-milk, 2 per cent. fat, 26 ounces; white of egg, one ounce. *M.* *Sig.*—Warm and feed as required.

Another example: We will consider modified milk suitable for a colt. We will use separator-milk, because skim-milk is already too rich in fats, and add 16 per cent. cream. In this case our prescription will read: For colt. *Rx.*—Cream, 16 per cent. fat, 3 ounces; separator-milk, 20 ounces; water, q. s. ad., 40 ounces; milk sugar, 1.2 ounces. *M.* *Sig.*—Use as directed. For puppy: *Rx.*—Cream, 16 per cent., 24 ounces; white of egg, 3 ounces; separator-milk, q. s. ad., 40 ounces. *M.* *Sig.*—Warm to blood-heat and feed as required.

In the last prescription the percentage of sugars is .20 per cent. too high, but this variation is permissible.

London (England) and Bremen (Germany) are still large buyers of horses in American markets, and Chicago in one week in March received and sold over 13,000 head.

WHAT OUR DAIRY CATTLE INHERIT.¹

BY M. E. CONARD, V.M.D.,
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INHERITANCE, as the term is generally used, means something willed, bequeathed, or given by one person to another of a younger generation, as money, bonds, lands, or something representing wealth along financial lines; but as our dairy-cattle do not indulge in the use of the filthy lucre, with its innumerable concomitant evils, we must consider their inheritance from a broader and more comprehensive standpoint. Scientifically or physiologically speaking, an inheritance is a trait of character or anatomical conformation given to an individual by the presence of a like condition in one or both of its parents. (Like begets like.) The individual characteristics of shape, size, conformation, character, or mental development, of which we as a human race are so proud, are simply the result of transmission or inheritance, if you please, and are modified, multiplied, transposed, or deviated by the conditions of life to which we are subjected, developing, as it were, to meet the demands of our environments, but not adding one new or original trait of character to our being. In short, we are made up of second-hand characteristics, some of which, for the want of proper surroundings or circumstances, may have remained almost or wholly dormant in our parents, but were nevertheless present, and when we are surrounded by conditions suitable for their development they predominate over those apparent originalities of the parent which are in reality prominent individualities, resulting in an excessive development in certain lines.

Now the same general rule must apply to the lower order of this world's inhabitants that governs the development of "God's image." Then, let us consider the primitive condition, the subsequent environment, and the evolutionary process through which our dairy-cattle have passed to become the wet-nurse of the human race, and note the result.

The original cow, the female of the bovine race, was at first possessed with the responsibility of reproducing her species, and producing sufficient milk for its sustenance for the first few weeks of its life; then lactation ended, the cow becoming pregnant again, and repeating the process annually, giving the system ample time

¹ Read at the annual meeting of the Pennsylvania State Veterinary Medical Association. March, 1898.

to regain its normal vigor and strength before the advent of another birth.

But when applied to the use of man for dairy purposes, what was required of her, and what were her environments? She was required to convert the greatest possible amount of feed into marketable products, and as her life-value was and is measured only by her ability to produce milk and butter, the process of lactation was steadily increased to its utmost capacity, often being terminated only by death, having been occasionally interrupted by the birth of a poor, weakly, little, half-starved calf; and this is the No. 1. dairy-cow of the present day.

You may ask how this change has been brought about, and who is responsible. A moment of reflection will show you. It is simply the result of the transmission of paternal characteristics and impressions, which is the sole object of careful breeding. How is it done, do you ask? By so feeding, housing, nursing, milking, and generally treating a cow as to develop her milk-producing organs away out of proportion to and in excess of the rest of her physical structure, and to prolong the period of lactation until the birth of the calf, which she is expected to create after her own image.

Now you will all agree with me that a pregnant cow must necessarily, according to natural laws, emphasize in her offspring the character or quality that is made the most prominent in her being during her term of pregnancy; and what is more prominent than the production of milk? Now if this calf should be a heifer, she is carefully raised and mated with a male that has been produced under like conditions; possibly a descendant of the same ancestry, who has had instilled into him the property of begetting the same characteristics. The result is an unbalanced accumulation of forces in the next generation, with an insufficient supply of vitality to run the machine to its proper capacity, and the result must be a breakdown.

This line of breeding, developing, transmitting, and inheriting only those properties that seem to apply to our immediate needs or demands in the production of milk, butter, or cheese, regardless of the constitution and vigor of the race, must of necessity, if followed generation after generation, have the effect to detract from the vital energy the powers of resisting disease, the ability to produce a strong, healthy offspring. It must also create a tendency in generations to come, or a predisposition, if you please, to such diseases or ailments as tuberculosis, abortion, parturient apoplexy, or such others as may come in way. For as any set of organs

are developed at the expense of another set, so the opportunity is offered for the entrance of such as the robbed and weakened are heir to. Do not understand me to be opposed to good breeding. I am far from it. But good breeding of dairy-cattle, as well as any other kind of live-stock, or even the human race, demands an equal proportionate development of each and every part, so that there can be no jostling or discord. No diverting of vitality out of normal channels. In short, she must be so constituted that she can produce a profitable amount of marketable products, and not break down in middle life. She must also produce a good strong calf every year. An animal of this kind is not so likely to become a medium in which the ever-present germs of disease find favorable soil for their growth, multiplication, and perpetuation, and through which they can find their way into the stomachs of babies and convalescents.

Now there is not a man in this room, I trust, who would not speak in the most commendatory terms of the most excellent work being done toward the eradication of diseases of live-stock in this grand old Commonwealth by our Live-stock Sanitary Board, under the efficient direction of our mutual friend and brother, Dr. Leonard Pearson. I wish to say, in conclusion, that it is our moral duty as custodians of the health of the live-stock in our respective districts so to influence the breeding, care, and management of our live-stock, particularly dairy-cattle, that we may assist in the good work by producing a race of cattle that have not inherited the ills of the present generation, but by their vigorous constitutions are almost immune from disease.

EVERSION OF THE UTERUS IN COWS.

BY H. P. KEELY, V.M.D.,
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IN this paper I do not propose to bring before you anything new or startling; merely to review the causes, symptoms, and treatment, and to tell you what, in my experience, has given good results, knowing that if this paper is discussed I shall learn more than I am able to teach you.

Definition. Eversion of the uterus may be defined as the turn-

¹ Read before the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1898.

ing inside out of the organ—a kind of hernia through the os uteri. It may be turned partial, if it does not protrude beyond the vulva; complete, if it goes beyond the vulva to the exterior of the body, when it usually forms a large, longish tumor, hanging down sometimes as low as the hocks, and showing on its surface the cotyledons, and is usually then accompanied with prolapsus of the floor of the vagina.

Symptoms. These are unmistakable. You find a large, longish-shaped tumor coming from between the lips of the vulva. On the surface you will find the cotyledons, and the presence of these makes the diagnosis complete. The floor of the vagina, when prolapsed, is smooth on its surface, and forms more nearly a round or globular tumor, and does not hang down as low. The inverted bladder can be recognized by finding the openings of the ureters and by having the base of the tumor much constricted and issuing from the opening of the urethra. The bag of waters before calving and the foetal envelopes after calving are not easily mistaken; although I have known it to happen. There is usually not much straining after the eversion is complete, until you come to reduce it. The general symptoms, if any, depend on the length of time since the accident occurred, and are those of pain and uneasiness.

Complications. These usually arise from injuries, from neglecting the case by not sending for competent help in time, or allowing ignorant and unskilled persons to attempt reduction, or the animal may injure itself in the stable, or other cattle may tramp on it. Generally there are lacerations, allowing the bladder and intestines to pass out. A case of this kind I saw recently was in a cow not with calf. Before calving she had prolapsus of the vagina and eversion of the uterus after calving. These were treated, and the cow did well, but it was not bred again. About eight or nine months afterward she was found one morning in the stable with a prolapsed vagina which was simply a mass of shreds, the bladder protruded, and about all the small intestine, it appeared to me, was out, hanging away below the hocks. My treatment was to ask the farmer for his rifle to shoot the animal.

Prognosis. Depends upon the length of time elapsing between the occurrence of the accident and time of treatment, and upon the condition of the animal. Most cases, if treated promptly, and in a cow of fairly good constitution, not too old or debilitated, will make good recoveries. I have seen cows so weak that they were not able to rise for three or four days make good recoveries. It seems to be a prevalent idea among people that, having once

occurred, it is apt to recur every time the cow has a calf. But experience does not bear this out, as cows will frequently, after such an accident, again become pregnant and calve all right without a repetition of the trouble.

Causes. Pregnancy must be given a place as a cause, as it never happens except in breeding animals ; in fact, cannot happen except at time of labor, or soon after, when the os is dilated. Difficult labor may cause it at times ; but we all of us have, at times, used much force in extricating the foetus, and had no eversion, and we know that it happens after the easiest deliveries. Sloping floors have been blamed, but it also occurs on floors that are level. Prolapsus of the vagina during pregnancy, making traction on the uterus and straining its ligaments, has been urged as a cause ; but we know that lots of cows have prolapsus of the vagina during pregnancy, but no eversion of the uterus. It appears that certain predisposing causes are necessary, and then it requires but very little to excite eversion. I believe that we must have a relaxed condition of the ligaments holding the uterus in place. This may be due to a general softness or looseness of the tissues, caused, probably, by soft, sloppy feeding. Given such a condition, it requires only a little turning in of the fundus or one of the cornua, like the end of the finger of a glove, and severe straining, perhaps, from constipation, or excessive peristalsis, or contraction in the womb itself, probably from drinking very cold water—and away it goes, gathering momentum as it goes, until everything is turned inside out. It is a practice among drovers and some farmers to give their cows all the cold water they want to drink immediately after calving, to make them clean, and it often cleans them more thoroughly than they care for ; of course, the owner will never admit anything of this kind.

Treatment. Preliminary ; reduction ; retention.

Preliminary : Very often we find our patient down, especially if any considerable time has elapsed since the accident occurred. If possible, get her upon her feet, as it is much more convenient to work at the animal in this position, and the uterus is better retained when once returned, as it goes in on a level or down-hill, instead of being all up-hill work, as it is when the cow is down. If impossible to get her on her feet, we may try to raise the hind part by means of bundles of straw placed under the hips ; but this will usually be found unsatisfactory, and there is then nothing to do but get down on your knees and go to work. Of course, to cleanse the organ of all foreign substances is the first step. If any of the

foetal membranes are still adherent they can easily be removed. A good plan, if you have plenty of help, is to have two men, one on each side, to support the uterus on a clean bag or cloth. If the cow is down, slip a clean bag underneath the uterus for it to rest on. I always order a bucketful of right hot water, to which I put some permanganate of potash with which I bathe the uterus, cleaning it and somewhat reducing the swelling and size. Fleming advises cold water, even pieces of ice, to be rubbed over it; but hot water has always given me good results. Having thoroughly cleansed the uterus, we are ready for the next step.

Reduction: If the everted mass is small, it is an easy matter to return it. But if, as is usually the case, the whole of the uterus is turned out, and the vagina also prolapsed, and has been so for some time, and has become swollen and tumefied, it is certainly no easy job. It is a work requiring lots of patientce, considerable strength, and a great deal of care, lest we injure it by using too much force. Have your two men support the weight of the uterus on a cloth, or bag, while you start to work it in around the edges, a little at a time. Work in one side and hold that within the vulva while you work in a little on the other side, and thus working from side to side, always being on your guard to hold what you have gained against the cow's straining, until you have it pretty well reduced, when you will feel it beginning to go easy. Now you can clap one hand on the remaining portion and shove it in. Having returned the uterus, it is necessary to follow it up with one hand, and smoothe out all the folds, and get the cornua and all the parts to their proper places as nearly as possible. In cases in which the uterus has been out for some time, and has become much swollen, you will find this difficult or impossible, more especially so if the cow is down. But I believe your success will depend, in a great measure, on whether this is done thoroughly or not. You will find your work greatly increased by the animal's straining and working against you. If you can devise means to overcome this straining you will find your work reduced by at least half. Among the methods used to overcome straining is pinching up the skin of the back (farmers sometimes pinch up a fold of the skin and place an awl through it, and a girth around the body or around the chest). Some advise tracheotomy. It seems that this method ought certainly to be effective, because it is impossible for the cow to fix the epiglottis and hold her breath with an opening in the trachea, and without doing this it is impossible for her to strain. I have had no personal experience with

tracheotomy in these cases, and I trust that those members who have will favor us with their experience.

Retention : Having returned the uterus and smoothed out all the folds, and everything is in its natural place as nearly as possible, we must devise means for retaining the organ and prevent its being again everted. Among the various means used are pessaries, sutures, skewers, and trusses. The best, I believe, is the pessary, though for the sake of convenience I usually use the sutures. The pessary is best, in my opinion, because it does more to hold the uterus and floor of the vagina to their natural places. The sutures, if properly applied, will not allow the uterus to be protruded to the exterior of the body; but they do not prevent the organ from everting itself and lodging a whole big mass in the posterior portion of the pelvic cavity. I have seen this happen several times, especially in cows too weak to get up. The same is true of skewers and trusses. The pessary, of course, is very difficult or almost impossible to apply when the animal is down.

Pessary : Fleming mentions and describes a number of different kinds of pessaries—the pad, ring, cup and ball, bottle, and pig's bladder. Of these I have had experience with only the first, or pad. It has always given me excellent results. It is a sort of home-made affair, and the materials for making it can generally be found on any farm. To make it, take a short fork- or spade-handle, those with the hand-hold are the most convenient, though this is not strictly necessary, as a hole can be bored to hold your rope, or any round piece of wood of proper thickness and length may be used; saw it about eighteen inches long; about four or six inches from one end cut a groove clear around to hold the string with which you tie the pad. Then make the pad on this end, by wrapping it with rags or cloths until you have a pad about the size of two fists, then tie securely with a string in the groove you have cut, and it is ready for use. Before inserting it, I always dip the pad in melted lard. Then insert it into the vagina as far as may be necessary. Now, to hold it in place, take a rope and knot the middle of it to the handle. Take an end up on each side of the tail, on the croup make a single loose knot, go forward along the back to the withers, make another knot down on each side of the neck, knot again back between the front legs, up on each side of the body, pass an end through the rope on each side at the back, go down and back through between the hind legs on each side of the udder and up to your starting place. Tighten your ropes and tie securely. This I believe to be the best method when the cow is able to stand

for you to apply it. It makes no difference if she does go down afterward. The other pessaries are applied in practically the same way, and are no doubt good ; but having never tried them, I can say nothing about them.

Sutures : These are of two kinds, labial and hip ; labial when only the lips of the vulva are sutured, and hip when they are passed through the skin of the hips. My method of suturing is this : Start with a seton-needle and a stout piece of tape ; take a hold in the thick skin of the hip on one side a little below the level of the superior commissure of the vulva ; go across, taking a deep hold through both lips of the vulva, and on over again through the skin on the hip on the other side ; then cross obliquely to the first side, and repeat at about the level of the inferior third of the vulva. Then draw up and tie your two ends securely.

For these two methods, the only ones I ever used, I do not claim any originality. They were taught me by our worthy ex-President, Dr. Ridge.

Trusses : About these and skewers I shall not have much to say, never having used them. But it seems to me that the pessary has the same advantage over these that it has over sutures ; it maintains the parts in place, while the trusses and sutures simply prevent the organ from being protruded to the exterior of the body. Before leaving our subject, we must never forget to order the cow so placed that she will stand or lie high behind and low in front.

After-treatment. This must be governed by the individual case, and by meeting emergencies as they arise. Keep the cow standing high behind. Avoid constipation. Feed so as to keep the bowels open ; give no very cold water. If there be fever, treat accordingly. If there is straining, you may give anodynes, but nothing that will constipate ; cannabis indica may be given—its tendency to constipate is not great. We may put a tight girth around the body or chest. The pessary or suture may safely be left as long as deemed necessary, as long as they do not interfere with the natural functions, defecation and micturition.

Amputation. About this method of treatment I shall have but little to say. I tried it once—result, dead cow. It happened when I was in that stage of my professional career when a man is ready to do or try anything that the owner will permit, just for the sake of the experience or to see how it will go, anyhow. The owner came to me wanting to know if I could not amputate the cow's uterus. He said he had replaced it and sewed her up several times, but it would not stay. I went with him, and started

in to exhibit my superior knowledge and skill ; I ligated, as I thought, sufficiently tight and started to amputate with the *écraseur*. I probably cut too close to my ligature, and it slipped, and, perhaps, I used the *écraseur* too rapidly ; but, anyhow, the blood came in the thickest stream I ever saw, and the cow promptly died. Fortunately, the man had the cow insured, and felt as little inclined to talk about it as I did. However, I would not now hesitate, with hope of more success, to amputate a uterus where I thought it was really indicated, where I am sure all other methods had failed or it had become gangrenous or much lacerated.

PASTEURIZATION VERSUS PURITY.¹

BY H. B. FELTON, M.D.,
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THE above title has been suggested by a paper read recently by Dr. John I. Carter before the Avondale Institute, in which he condemns the pasteurization of milk, claiming that by this process the life-principle is taken out of the milk, and it is rendered unwholesome and innutritious.

Dr. Carter rightfully contends for "an absolutely wholesome milk, produced by a healthy, vigorous cow, fed on sweet, wholesome food, kept in untainted environments, milked in a cleanly manner, and the product kept from after-contamination." Such a milk is indeed an ideal product, and in no need of pasteurization. The nearest approach to it at the present time is the milk produced upon the "Walker-Gordon" dairy-farms, where every precaution known to modern science is taken to prevent contamination. Such a milk may be regarded as above suspicion ; but, unfortunately, the amount of it produced as compared with the total supply is but as a drop in the bucket.

It has occurred to me that in the present condition of our milk-supply it is unwise to condemn pasteurization, and that it is the most valuable means we possess of safeguarding one of our most important food-products.

Milk is one of the most favorable mediums for the growth of bacteria. As produced and sold in the ordinary way it literally swarms with them. Samples taken at random from the milk sup-

¹ Read before the meeting of the Pennsylvania State Veterinary Medical Association, Philadelphia, March 8, 1898.

plied to any of our large cities will show anywhere from 500,000 to 1,500,000 bacteria per cubic centimetre. A large number of the bacteria found in milk are such as cause the usual acid fermentation which occurs when milk turns sour; but there are many species which ought to be excluded, arising from mouldy hay, straw, or fodder, partially decayed roots, and the natural decay of the woodwork of the barn and adjoining buildings. Many of these bacteria cause alkaline fermentation and other abnormal conditions of milk.

The question is often asked, Why are we not all destroyed by the countless numbers of microbes that are in the air we breathe, in the water we drink, and the food which we swallow? Dr. H. Beauregard, an eminent physician of Paris, in an article on "Microbes and Man" in the *Revue Pédagogique*, a translation of which appears in the *Literary Digest* of January 8, 1898, has shown that the human body is perfectly organized to resist the different phases of the attacks of the microbes, and has also shown how we may succumb to them. Before reaching us they have already encountered conditions which put them in a certain measure in a state of inferiority. The oxygen of the air and light are agents which injure their vitality. From this fact arises the importance of hygiene. Having reached the skin, microbes find an efficacious barrier in the cells of the epidermis of which those on the surface are horny and in a continual state of desquamation. This may be called the physical defence of the epidermis. The skin also contains glands producing sweat and oily matter. These substances are eminently unfavorable for keeping up life in microbes. Should the microbes penetrate into the glands themselves, they are borne out upon the current of gland-secretion when the gland is excited into action. Those microbes which enter the mouth and nostrils find a membrane lining these composed of cells not unlike the cells of the epidermis, and this membrane is constantly moistened with liquids which are not at all favorable to the development of the assailant. If the microbes manage to get into the œsophagus, and so reach the stomach, they find there conditions which are not good for their health in the shape of chlorohydric, lactic, and other acids. According to Escherich, the bacillus lactis ærogenes is found normally in the stomach, and is responsible for the conversion of milk-sugar into lactic acid, which is a powerful germicide for the other forms of bacteria. Many microbes are absolutely incapable of getting through the stomach and penetrating into the intestines, for they have been so battered and

knocked about, and their vitality has been so much lowered by their troubles on the road, that they end by being destroyed and even digested in the stomach. It has been proved, however, that mucous surfaces are not always an obstacle to the penetration of the microbe even when these surfaces are intact. Suppose the microbes manage to penetrate the tissues, then they meet with new obstacles. They find, in the first place, what are called phagocytes that is, cells which are eaters. These elements of the lymph show surprising activity, swallowing the microbes and digesting them. These phagocytes are most abundant at threatened points. If, in spite of the phagocytes, the microbes get into the blood, they have not won the battle yet. The serum of the blood has microbe-killing properties. The oxygen that is carried into the blood disagrees with many of the microbes, as carbonic acid does with others, and thus it is that the blood is rarely invaded with microbes in the course of the maladies they engender. If the microbes take up their residence in the heart of the organs, even there they meet with elements of resistance which are often efficacious, such as defensive proteins and other antitoxic substances produced by these organs.

When, however, the general functions of the system are troubled either hereditarily or by reason of an acquired abnormal state, such as gout, diabetes, visceral, pulmonary, or hepatic inflammation, the conditions of resistance are changed, for these, by vitiating the regular functions of the organs, affect the vitality of the tissues and particularly the phagocytic elements. The microbes are destroyed in much smaller quantities, and they no longer find antitoxic products which ought normally to oppose their development and neutralize the effect of their own poisons. In a word, they find a field of culture in which they cannot fail to flourish and multiply. The consequences are immediate, the infection of the tissues begins, and the poisons produced by the microbes are spread throughout the organism.

Such is the mechanism of the origin of diseases called infectious. From all this it is plain that everything which enfeebles our vitality is a dangerous condition and exposes to invasion. The most varied influences can come into play to create in us a condition of inferiority which will oblige us to surrender to our foe. Privations, great fatigue, the ingestion into our systems of toxic substances, intoxication by lead or alcohol, atmospheric conditions, excessive heat, intense cold, are so many elements which must be reckoned with.

There is no warrant, then, for neglecting microbes and considering them an enemy of slight importance. It would be folly to think that we may fold our arms and trust to our natural powers of resistance. On the contrary, we should always keep in mind that we have in microbes terrible adversaries, always on the alert to surprise us, and against which we are bound to maintain as intact as possible the natural defences with which our organism can oppose them. We believe one of our most valuable allies to be pasteurization. In our opinion Pasteur has done no more valuable service for mankind than in giving us the process which bears his name. When we think of the vast number of infants deprived of the mother's milk, which nature intended them to imbibe, and dependent upon the cow for their source of supply; when we consider that the natural powers of resistance of the infant are far below those of the adult, and that by reason of the enervating heat of summer, or the cold of winter, or bad hygienic surroundings, these powers are still further weakened, we see how important it is that they should be supplied with a food free from germs. It has been proved that milk has been the medium through which tuberculosis, typhoid fever, scarlet fever, and diphtheria have been contracted. The colon bacillus is held responsible for producing ileocolitis, or the ordinary summer-complaint of children. Milk rich in bacteria is regarded by the highest authorities as being difficult of digestion for children, and causing food-vomiting, dyspepsia, mycotic diarrhoea and ileo-colitis.

In the absence of a systematic inspection of milk at the dairies by trained veterinarians, how can we know that the milk-supply will be free from these germs? We do know that pasteurization will destroy these germs. By pasteurization we mean heating the milk to 167° F. and keeping it at that temperature for forty minutes by means of live steam. This has been found to be the best method, and is that practised in the Walker-Gordon laboratories. The highest thermal death-point of all germs ordinarily found in milk is 157° F., so that a safe margin is allowed. It is important that the milk be rapidly cooled after this process, in order that bacteria may not develop during the time of cooling. It is most conveniently carried on in vessels containing not more than half a pint, which must be tightly stoppered and are not to be opened until used.

Milk pasteurized in this way does not lose its distinctive taste or odor, nor is its nutritive value or digestibility impaired in any way. It has been claimed that by this process the life-principle is

destroyed. We do not believe that any life is destroyed except that which is harmful by its presence. The coagulation of the proteids does not begin until 171° F. is reached, when changes take place which render the milk more difficult of digestion.

The Walker-Gordon laboratories are supplying large numbers of infants and children in all of our large cities with milk that has been pasteurized. Although they furnish milk comparatively free from germs, it is deemed best as a matter of precaution to subject it to this process. Physicians are getting results by means of this scientific feeding rendered possible by these milk-laboratories that they have never attained before. We believe that the pasteurizing-kettle will become a rival of the tea-kettle when its virtues are more widely known. Science has given us a clear light upon this subject. Let us not go back to the darkness of the past.

PECULIARITIES OF THE LESIONS OF SPAVIN.

BY S. J. J. HARGER, V.M.D.,

PROFESSOR OF VETERINARY ANATOMY AND ZOÖTECHNICS, UNIVERSITY OF PENNSYLVANIA.

THE discussion of the disease of the hock, ordinarily called bone-spavin, is not new, and if I only repeat old things, I am repaid if the subject is presented to some of you in a new light.

The anatomic construction of the hock renders it somewhat difficult to understand the precise nature of some of its pathologic conditions. The hock-joint overcomes at each step a very great resistance, a work which it could not accomplish were it not for the mechanical arrangements of the bones, ligaments, fibrous bands, and tendons. In performing its function it acts as a lever of the second class, the arm of the lever being the tarsal bones and the canon from the point of the hock to the fetlock; the power is applied at the point of the hock; the weight to be displaced forward in locomotion is exerted upon the astragalus by the lower end of the tibia; the fetlock is the fulcrum. On account of the intimate union of the hock-bones and the latter to the canon- and splint-bones, the bony ray from the point of the hock to the fetlock may for the time be considered as one rigid piece. Toward the upper extremity, at the astragalus and the lower extremity of the tibia, it supports the weight of the member, under which weight its tendency is to give or break at some point. The strain on this rigid rod of bone, its theoretical tendency to bend, and the consequent overstretching or rupture of some of its ligaments, are greater the

more nearly perpendicular the tibia is to the back, because then the perforans, perforatus gastrocnemius, and tibial fascia are more powerful, since their angle of attachment to the bones tends toward a right angle. Thus the integrity of the hock-joint (not including lateral displacement) is in greatest danger when partially flexed. This is seen momentarily when the foot touches the ground and before the leg is straightened to throw the body forward; also in slipping and trying to recover from a misstep; that is, at the beginning of the phase of contact.

The part that yields first is the one most frequently diseased. All know that it is the inner and lower parts of the hock which are most frequently diseased, and the study of the mechanism of this joint is necessary in order to interpret all the facts. These parts suffer most because the bones and ligaments of this region, relatively or absolutely, support more weight or pressure, traction and concussion than those in the other parts. Among such predisposing conditions may be mentioned: 1. Greater development and strength of the hock-bones on the outside; a vertical line passing through the centre of the canon-bone divides the hock into two unequal portions, the internal being the smaller. 2. The obliquity of the tibia. This bone slants downward and inward by its lower extremity, and aided by the obliquity of the articular surface and the prominence of the internal lip tends to press downward, but a little inward, to the inner side. 3. The line of vertical pressure of the tibia upon the hock-bones. This pressure is received upon the pulley of the astragalus, the greater portion of which is carried in a more vertical line to the scaphoid, two cuneiforms, and the inner half of the canon and internal splints, which are directly superposed. On the outside this condition does not exist, and much of the force is destroyed before it reaches these bones, which do not lie in the direct line of pressure of the tibia upon the astragalus, but rather to the outside.

The line of greatest pressure in the hock from above to below seems to slant obliquely inward to the lower end of the internal side. This is indicated by the inward slant of the articular surfaces of the scaphoid, cuboid, and canon-bones. It may be presumed that if the pressure were equally distributed, these surfaces would be more horizontal. These conditions are sometimes made more effective by a faulty external conformation, and thus predispose to spavin.

Opinions are at variance as to the seat of the initial lesions and the order in which the alterations follow. Diekerhoff's theory of

the cunean tendon can be dismissed after reasoning from the manner of attachment of that tendon, and the fact that inflammation of the synovial bursa is so rare, and when it does exist causes no lameness. Again, according to some writers, spavin commences as a periostitis due to a hyperextension of the lateral ligaments, and in their opinion bony enlargement is primary; others maintain that the articular surfaces are primarily affected and that the enlargement is secondary. Both views seem to have equally authoritative advocates, although the former is the one most generally believed.

I have had at my command between forty and fifty specimens of spavined hocks, which I have carefully examined in order to endeavor to make any possible deductions as to the point of the beginning of the disease and the order of succession of the various lesions, and the order in which the steps of the alterations follow each other. But the primary seat seems to have been constant—that is, the initial lesion of a chronic spavin appears to be a chronic arthritis of the hock-bones affecting the articular surfaces between two adjoining bones, with desquamation of the articular cartilage, etc. This process is the first stage in the development of spavin. In the second stage the ostitis terminates in a coössification of these diseased bones. In the third stage the articular inflammation spreads to the periphery of the bone, to the periosteum, causing a periostitis with a bony enlargement. If the diseased process becomes generalized, these various phases are progressing simultaneously in different parts of the articulation. As evidence of chronic arthritis, some of the bones were always found, and with unexpected frequency, without bony deposit on the outside of the bone. The bony deposit on the outside, unless it was very small, was seen only after the coössification of the bones of the lower row with one another and with the metacarpals was well advanced. I can only speak from what I have observed; but it seemed to me that the earliest and most frequent bones to coössify were the scaphoid and large cuneiform, and the cuneiforms to the metatarsus in decreasing order. The small cuneiforms did not show any evidence of being so often primarily affected, contrary to what is usually said. A bone tumor was not observed unless the union of the bones implicated was completed, excepting a small bony deposit at the upper end of the canon and in front, due to a laceration of the tendons of the flexor metatarsi. I do not mean to intimate that all bony enlargements of the internal side of the hock are secondary to articular lesions, and that the reverse cannot be true. I only refer to the average chronic spavin as one usually sees it. Such

enlargements may result from a primary periostitis, from laceration of the peripheral ligaments, due to violent traumatism of the hock, resulting in a generalized periostitis. Accepting this view, we can explain how deep-seated the cause of lameness may be without any outward signs, and how difficult the diagnosis may be.

We have often had cases of lameness which we were inclined to locate in the hock, but perhaps we hesitated because of the absence of local symptoms. The local fever is sometimes well marked; but it appears to me that in mild lesions its absence would not be negative proof. The lameness may precede the presence of an enlargement for some time. This period may be variable. In one instance, on reliable information, a mare was lame for a year from a suspected spavin, and at the autopsy complete ankylosis of one hock was found. In one instance under my observation, a mare was lame for three months, presenting the symptoms indicative of hock-lameness, but there was no difference between the hocks, excepting a decided fever on the internal side of the one that was diseased. Other cases of obscure lameness are met in practice which may be placed under this category while, at the same time, in the absence of other symptoms, our opinion should be guarded.

The term "acute" spavin applies, then, only to a desquamation or the first stage of an ordinary spavin, which may be of variable duration. The articular cartilage when once desquamated and absorbed, not being able to regenerate itself, we can readily understand that the treatment employed in such cases is not of use because it is counter-irritant, but must always be directed toward hastening the ankylosis.

The lesion of spavin is, therefore, exactly the opposite to that of ringbone—a difference dependent upon different anatomical conditions. In the latter (ringbone), in all the specimens which I have examined, the primary lesion is a periostitis and a peripheral deposit of bone. It is only in the very last stages that the articular cartilage of the phalanges becomes destroyed and ankylosis takes place; in fact, the bony deposit may be very large and the mechanical interference with the articulation very considerable, and still the articular surfaces be intact. The latter being so large and freely movable, making ankylosis with artificial means very difficult, combined with the mechanical interference of the movements, explains the poor success obtained in treating this diseased condition.

From a legal standpoint it may be said that the simple coössi-fication of the lower bones of the hock is not incompatible with apparent soundness in the gait. We know that there is a natu-

ral tendency in the horse's foot for some of the bones to atrophy and become coössified with others, such as the canon- and splint-bones. His manner of locomotion requires this. The same is true of the hock-bones. Some of them may coössify without any external alterations and without at any time showing any lameness, the animal having been always under observation. The ankylosis in both hocks is alike. This seems to be due to a constitutional predisposition, and during this process an exciting cause less powerful than under ordinary conditions may determine a spavin.

FEEDING ANIMALS.¹

BY J. CURTIS MICHENER, V.S.,
COLMAR, PA.

THIS subject was selected, not that feeding animals is any special part of the veterinarian's duty, but quite as important for him to understand as the stockman whom he serves. More than this, his client has a right to expect of him sound counsel upon any of the manifold problems that arise in the healthful and economical feeding of all animals and poultry. His practised eye should be quick to detect any deviation from the perfect thrift that marks the animal when at its best, for the purpose for which it is being fed, and be able to prescribe the necessary diet to correct defective conditions, instead of giving condition-powders.

However, they act admirably when given together. The basis of all intelligent and successful feeding is in the recognition of the underlying fact that the various feeds are composed of the same elements as the bodies they nourish. In other words, vegetation incorporates from soil and air the materials that the animal body is about to appropriate. But the proportions are seldom right. The water, ash, protein, fat, and carbohydrates of the various forage-plants and cereals are in widely varying proportions and degrees of digestibility; so that it is possible to starve an animal while giving it all it is able to eat, to greatly curtail the production of milk by a badly-balanced ration, or to so diminish force as to render an animal worthless for work. To feed for bare maintenance is one thing; for rapid growth and full development, a better thing; to feed a milk-cow at a loss, an easy thing; to feed a

¹ Read at the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1898.

horse up to his full capacity for work, a grand thing. While pedigree is important, skill in feeding makes the successful breeder.

We have different kinds of feeding. Scientific feeding: the right materials in exact proportions for desired results; good feeding, derived from the experience of one's self, and teaching of others; hap-hazard feeding, and ignorant, careless, ruinous, criminal feeding. But our live-stock interests, the greatest of any people upon the globe, demand that we understand and practise the business for the best results. Science is the lever; experience the hand that applies it; love and admiration for our animals, the inspiration, and profit accruing, the consummation devoutly wished for.

The science of feeding is exact so far as determining the relative proportions of the digestible protein to the carbohydrates and fat, for different purposes, under the same conditions. Animals are kept under such widely different circumstances as to shelter, ventilation, exercise, and work, and have formed different habits from influence of environment, making it hard to lay down inflexible rules. The analysis of the different foods at hand, and a careful study of the condition, purpose, and characteristics of the animal enable the skilful feeder to acquire exactness and proficiency.

I will enumerate the essential principles of the art of feeding, in the order of their importance, but must omit detail from want of time. As before intimated, feeding is reduced to an exact science; and knowledge of the composition of animal bodies, and of the various foods that are to sustain, make growth, produce milk or wool, repair waste, perform work and lay on fat must be familiar, and by the use of figures which will not lie, the problem is solved.

The materials must be so selected and combined as to constitute the balanced ration for the purpose. Animals are soon fed and bred into a fat-forming or beef-habit which destroys their adaptability for the dairy or the racetrack; hens fed exclusively upon fattening foods cease laying; the hogs of our own section fail to fill the market demand—too much corn-fed, too little exercise, too much lard. The chemical constitution of the feed is the chief factor in giving firmness and hardness of bone and muscle-tone and action. Too little attention is paid to the amount of water in the feed. We see animals being nearly physicked to death upon succulent foods, and others badly impaired by constipation caused by hard, dry food. The right condition is maintained by proper combinations of feed. Stock need roots, silage, wet feed, or mash. The amount of needed water varies with the purpose of the animal,

and cannot be supplied by drink alone. The time of cutting and the perfection of the drying or curing process go far in determining the palatableness, the digestibility, and the danger of undergoing fermentation in the digestive tract. Kiln-dried, finely-ground cereals are the safest and most healthful, mixed with silage or made into a mash with cut-fodder or hay. From contact, I know the average farmer and feeder is not educated up to these points. Can he obtain the needed knowledge from his veterinarian? The problem is sometimes difficult because of the limited material at hand, and the price of such stuff as would balance up the ration being so high as to make its use unprofitable. Then the question is, What is best under the circumstances? Having determined this important matter, the quantity to be fed comes next. Medium or average quantities for different ages, weights, and purposes should be known; but individual capacity, natural and acquired, must be found out. Only liberal feeding is profitable; under- and overfeeding are mistakes. The varying values of feed in the manure must not be lost sight of when among the farmers. It is nice to be a skilful mechanic and construct useful things, or to understand the running of machinery; but such are not to be compared to the man who can grow and fatten animals just right, or to him who can run a herd of dairy-cows so as to get all from them that is to be had, and avoid indigestion, garget, and concomitant dangers and losses. It is done by regularity in watering and feeding, avoiding exposure or sudden changes in diet; gradually increasing the feed upon new animals until their capacity is determined, then keeping a sharp watch for the first indication of surfeit, and withholding until the keen appetite returns. The condition of the atmosphere, the temperature, the amount of fresh air entering the stable, and the exercise, all influence the appetite and digestion, and are taken into account by the practical feeder. Some feed may analyze well, but not be relished by stock, as individual animals have their likes and dislikes the same as persons, which opens a field for observation and tact. The addition of salt makes feed more palatable and digestible. A milk-cow should consume two ounces per day mixed through the feed; a work-horse one ounce. Cheap sugar and molasses can be profitably used; also various condiments. We should not allow the patent-feed and medicine-man to monopolize these things.

Michigan's State Veterinarian is kept busy among reported outbreaks of disease in cattle and swine.

TETANUS AS I HAVE FOUND IT IN CHESTER COUNTY.

By W. P. PHIPPS, V.M.D.,
KIRKWOOD, PA.

TETANUS is a spasmodic and continuous contraction of muscles, producing rigidity of the parts they supply, caused by the absorption of the products of a specific germ called the "tetanus bacilli." This organism is found in many soils, preferring those rich in potash, and multiplying only out of contact with the air, being anaërobic and growing best at a temperature of 95° F. to 100° F.

It is a rod-shaped bacillus, thickened at one end, and containing a spore. The spores are very resisting, requiring moist heat at 212° F. for five minutes to destroy them. The germ when in contact with an abraded surface, and the air becoming excluded, produces its tetanizing toxin.

Breeger has isolated four toxic ptomain substances from cultures of the so-called tetanus bacilli: 1. Tetanin, producing the symptoms of tetanus. 2. Teta-toxin, causing tumors, paralysis, and convulsions. 3. Muriate of toxin, producing tetanus and salivation. 4. Spasmotoxin, prostrates quickly with chlorine and tonic spasms.

The bacilli do not enter the blood, but remain in the tissues near the wound—only the ptomaines being absorbed into the blood, acting similarly to strychnine, but the cases fail to respond to like treatment.

Tetanus is usually produced from traumatism that admit the bacilli and of the character to exclude the air from the depth of the wound, as a puncture of the foot, flap-operation in myotomy of the tail, nicking and castration, etc.

Horses and sheep are the most susceptible, dogs the nearest immune, probably on account of their adaptedness of cleansing wounds. The disease may develop twelve days after the healing of a wound.

In the idiopathic form of tetanus there is no apparent abrasion, but may follow an internal lesion, as the virulent bacilli have been found in fresh feces, and Jennings suggested that this form of the disease may be caused by or through the irritation produced by intestinal vermin.

When the bacilli develop rapidly, and their products are rapidly

¹ Read before the annual meeting of the Pennsylvania State Veterinary Medical Association, Philadelphia, March, 1898.

absorbed, the disease is acute in form, and mortality is high, and *vice versa*.

As for the general symptom of tetanus, they are so distinct to the practitioner that they leave not the shadow of a doubt in diagnosis.

The prognoses in my limited experience have been grave, with the results personifying the prognosis.

This paper is written more in the hope of gaining knowledge than in the expectation of imparting anything new, except in the citing of three representative cases, taken from a day or more in my brief experience with this disease.

CASE I. was a gray gelding that I had furnished palliative treatment through an attack of influenza with gratifying results, and the doctor had been dispensed with, and the patient turned into the paddock during daytime to recruit. One evening the owner noticed the horse lame in the near front leg, and research resulted in finding a penetrating nail, which was withdrawn with apparent relief.

Four days later I was called and requested by the owner to cut the haw from over the sight, and thereby save the eye. He was much surprised when I explained that the case was tetanus (he would term lockjaw). As the horse was eating well, the owner doubted the diagnosis until symptoms were pronounced. The case terminated fatally in the acute form.

CASE II.—Called by farmer for ten-year-old mule, February 10, 1897, twelve miles due north. I found the animal with characteristic base-wide position, and the extensors tense; croup and cervical muscles hard, with head extended and tail elevated; nostrils dilated, and anxious, nervous expression of the countenance. Deglutition was impaired, although mastication was fairly good, and he consumed hay and fodder. Temperature 101.5° F.; pulse 48, full and strong, and strong peristaltic movement, apparently normal, but respiration labored and shallow from spasm of muscles used. Urination and defecation apparently normal in amount. Patient was in a comfortable stall at the end of the stable, stood next to mate, and, as there was no box-stall available, I permitted him to remain in his old position, and cautioned the owner to exclude light and surroundings that would tend to excite the patient. Found wound on the side of the pole, the size of a silver dollar, with history of recent healing. I curetted the same, produced profuse bleeding, and left instructions to apply twice daily to the part, with bristle-brush, Churchill's tr. iodine, diluted with the plain tr.

of iodine. I used concentrated medicine, as the fld. ext. cannabis Indica and belladonna, in small repeated doses by syringe in mouth, well back, and in powder form; I wrapped in tissue paper potassium iodide alternated with small doses of calomel, adding salines to drinking water to help regulate the excretory organs.

On account of the distance and expense involved, I saw the patient every third day. To the anxious inquiry of a fairly good nurse, I replied that if the patient progressed over the second week we might hope for a favorable termination. I made my fifth visit on February 13th, and the patient was going along quietly; appetite had flagged some, but still eating when encouraged by change of food; reclined less frequently, but had lain down during night; feces were hard and scant, but general tension of muscular system was more relaxed, with tail less erect, and I dared to hope for convalescence, but cautioned the owner that the enemy we were fighting was treacherous, and he must spare no patience to keep the mule quiet. On the sixteenth day I had expected to see my tetanus case, but received word that he was dead. On inquiry I learned that immediately after the termination of the second week the owner turned the mule into the yard so as to better judge of the progress of his improvement, and the next morning he was found as most of the subjects of tetanus terminate. I was disheartened when defeated in apparent view of success.

CASE III. was a four-year-old gelding, fairly well bred. I told the owner "the truth, the whole truth, and nothing but the truth" as I had found it in this disease, that the form of medical treatment was decidedly uncertain, and I advised the anti-tetanic serum treatment, which was promptly rejected on account of the price quoted. I cut the wound out in the foot, that had been healed, according to the owner's statement, for two weeks, and advised the iodine treatment, covered by antiseptic poultices. I ordered an easily digested diet, and quartered him in a darkened box to await developments. As the owner seemed very particular about the expense, I overlooked the case; but he came for me in a week and told me how much he thought of the horse, which is generally the case—when the condition becomes critical and the owner fears loss by death it becomes more valuable in his opinion.

On visiting the patient I found tonic contraction of muscular system, apparent profuse salivation, but able and persisting in eating, although lips and tongue were stiffened and mouth would open but slightly. Pulse, temperature, and excretions were fairly good, but respiration was labored, and he had been standing two days.

I prescribed similar to Case II., and at the owner's earnest request sent for the anti-tetanic serum, which I administered the following day, it being the eighth since I first called. I gave 40 c.c. in three doses six hours apart, injected hypodermatically with antiseptic precautions (the immunizing units were not given). The patient grew perceptibly worse for thirty-six hours following the injection of the serum, after which the tensiety of the muscular system gradually relaxed, and in three days after crisis the horse had lain down. Serous infiltration of the dependent portions of the body and limbs responded to potassium nitrate and digitalis. In ten days withdrew all medical treatment. The animal has made a perfect recovery. Was it the serum treatment? I think it was, looking at it not as a specific but as an adjuvant to our resources to combat tetanus, and especially as a preventive agent when so used.

GLEANINGS.

Dr. A. W. Bitting reports 80 per cent. of recoveries in ten cases of actinomycosis treated with a drachm to a drachm and a half of iodide of potassium daily for two weeks.

Crude petroleum is recommended by several large hog-breeders as an excellent exterminator of lice upon hogs. Its use internally as a laxative is also recommended. Its value as a food-product among swine is being discussed.

Jas. M. Hough, of South Dakota, reports the following as his experience in feeding millet to horses: That they grow fat as hogs; of some three mares in foal, one aborted and two had colts so weak-jointed that they never amounted to anything; the fattened horses were weak, and unable to do any hard work, and some of them died while under the usual farm-work. These animals sometimes require six months to get them in condition after a winter's feeding on millet. Sheep, cows, hogs, turkeys, and chickens do well on it. The latter increase in egg-producing qualities. Native bronchos seem less susceptible to ulterior influences from its use, but heavy horses become physical wrecks under its feeding.

The prosecution in the Luetgert case at Chicago, in the first trial, laughed at the idea of calling "horse doctors" as experts on bones; but in the words of the *Chicago Press*, "the laughing was all done before they testified."

REPORTS OF CASES.

CLINIC REPORT, VETERINARY HOSPITAL, UNIVERSITY OF PENNSYLVANIA.

S. J. J. HARGER, V.M.D., PROFESSOR, AND WM. G. SHAW, V.M.D.,
RESIDENT SURGEON.

CASE I. *Median Neurectomy in Ringbone and Tendonitis.*—The patient was a gray draught-gelding, aged. According to the statement of the owner, the animal had been lame for about a month, but judging from the extent of the lesions, the lameness must have existed for a longer period. The symptoms were decided lameness in the off fore-leg, knuckling of the fetlock, and resting the foot on the toe. The local alterations were: Contraction of the perforans and perforatus tendons, which were thickened, indurated, and adherent to each other; local fever had subsided and the inflammatory phenomena were subacute or even chronic. In addition to these symptoms there existed a large ringbone, involving the lower end of the first phalanx, the second, and possibly the articular surface of the os pedis. The corresponding articulations, while not entirely ankylosed, were seriously interfered with mechanically in their movements. The lateral cartilages were ossified.

Median neurectomy was advised and performed after the usual method. All antiseptic precautions were employed, and twenty-four hours before the operation the skin on the inside of the forearm and below the elbow-joint was shaved and cleansed, and a wad of oakum, saturated with a bichloride solution, was applied and maintained with a bandage around the leg and chest. The incision healed nicely without much swelling, no suppuration. Only a very slight lameness remained immediately after the operation. Two weeks after the operation the animal was discharged ready to do his usual work and showed no perceptible lameness.

The reasons for recommending this treatment in preference to any other were evident. The animal was a draught-horse whose value was dependent upon his earnings. The local treatment of ringbones with large exostoses is very unsatisfactory; this as well as firing or blistering the tendons would have required considerable time, without any certainty as to the result. There seems to be no dangerous complication to the neurectomy and no interference sub-

sequently with locomotion. I knew of no other treatment which in such a short time would enable the horse to perform his usual work.

CASE II. *Fatty Degeneration of the Kidney in a Cat.*—The subject was a tiger-striped cat, about a year old. The only history obtainable was that for about two weeks she refused to eat and became extremely emaciated. There was a slight discharge from the nose; food was refused. The temperature at the time was only 98.4° F.

The treatment prescribed consisted of tonics and stimulants, such as quinine, nux vomica, and whiskey. On account of the general condition of the animal, tuberculosis was suspected, and .04 c.c. tuberculin was injected. The next morning the temperature was subnormal, and the following day the cat died.

Autopsy. Tissues anæmic; catarrhal inflammation of nasal and pharyngeal mucous membranes. The only essential lesion was found in the kidneys. The cortical portion of both kidneys had undergone a complete fatty degeneration; but little normal tissue was left. This was the only lesion that was sufficient to explain the grave general condition, and without any other apparent symptoms liable to be associated with renal trouble.

What the cause of the kidney lesion was could not be determined. It may be said that among others, three principal causes for fatty degeneration of the kidneys are mentioned: 1. Chronic poisoning, the toxic material being constantly excreted by the kidneys, such as arsenic and phosphorus. 2. Continued fever with prolonged congestion of the renal tissues. 3. Pregnancy.

In this particular case, the degeneration being confined exclusively to the part which contains the principle excretory structures, the Malpighian bodies, the first of these three causes may have been in operation, but the exact nature could not be determined, and the history of the case was unsatisfactory. Unfortunately the urine was not examined during life.

CASE III. *Polypus of the Superior and Inferior Maxillary Sinuses.*—Aggravated cases of this pathologic condition are not frequently seen, but when they do exist they require either surgical interference, or otherwise render the animal useless. In fact, these cases are more readily heard than seen. Usually no treatment is prescribed. The patient was a bay gelding (draught), aged. History not obtainable. Symptoms: Nostrils dilated; discharge from the right nostril; breathing labored, distressing, and very loud, and of a rasping, snoring-like character, and during rest could be heard

at a great distance. Examination of the nasal fossa showed the turbinated bones pushed toward the nasal septum. Percussion revealed dulness over both sinuses. No constitutional symptoms; no local swelling; unable to work.

Treatment. The circumstances were such that the removal of the growth was preferred to tracheotomy, and trephining the sinuses was decided upon. A long oval incision was made on the side of the face above the maxillary spine and not infringing upon the attachment of the supermaxillo-labialis muscle. The flap was resected and the two sinuses trephined. Both were completely filled with a growth having a smooth grayish aspect, soft, easily torn and irregular surface, and appearing to be attached principally to the turbinated bones. Unfortunately, no microscopic examination was made. With a pair of bone-forceps the bone was broken away to make a sufficiently large opening to admit the instrument, as well as the fingers, to outline the extent of this growth. The opening was enlarged to suit the circumstances until it was quite large. With a bulldog-forceps, a pair of curved scissors, and drawing-knife, the growth was removed with the greatest care that was possible. The hemorrhage was quite copious. The skin-wound being large, a few sutures were inserted at the upper angle. A portion of the superior turbinated bone was removed with the growth.

The after-treatment was that for an ordinary collection of the sinuses, antiseptic and astringent injections. The wound healed and the discharge ceased. The owner reported that at the end of a year, when the horse escaped from his observation, there was no recurrence of the disease. Another case was operated on, but we have no information whether the symptoms, which had at last observation disappeared, had subsequently recurred.

CASE IV. *Canker of Both Forefeet.*—Patient, gray gelding, seven years old, was admitted to the free clinic August 11, 1897. The animal was lame in both forefeet. On examining the feet the frogs were found to be covered in their posterior two-thirds with a fungoid growth, which was painful to pressure and covered with a dark-colored, offensive exudate.

History. Horse was worked in a milk-wagon. He had been troubled with thrush for almost a year, for which he had been treated by owner and farrier without success.

Diagnosis. Podo-dermatitis, chronic canker of the frogs.

Treatment. Shoes were removed and some of the loose horny tissue cut away; animal was very nervous; could do very little

without casting him. Placed in creolin soak until following day, softened horn and cleansed feet. August 12th, after preparing instruments, antiseptics, etc., patient was removed from soak and cast. Left front foot was fastened about hock of hind leg in the usual manner. Injected cocaine on plantar nerves. I now cut away the loose particles of frog, and made my first thorough examination. I found that the separation extended quite deeply and behind the upper bars, and almost to the point of the frog, and posterior to the glomes of the heel. Now cut away the bars until no non-adherent material remained. Applied a *tourniquet*. Having the bars cut well away, the frog was quite prominent. With sage-knives I removed the entire frog, cutting well up into the plantar cushion; excess of hemorrhage was checked by thermo-cautery and a 10 per cent. solution of sulphuric acid in alcohol. A flat shoe was now applied and seat of operation dressed with boric and tannic acids, and the ordinary pressure-dressing applied, as well as bandage around the hoof to hold dressing against the heels. Operation on right foot was very similar, only did not remove all the frog. Dressed similar to left, only using more sulphuric acid to check exudation. Patient was now allowed to rise. Subsequent treatment consisted of antiseptics with pressure dressing and occasionally using a cautery. On the 20th of August shoes were applied with movable metal plates and calks; patient was discharged and allowed to do light work, to be returned and have feet dressed. He was returned at stated intervals until November 1st, when feet were thoroughly soaked and shoes with leather soles put on. Frogs sound and healthy.

It may be interesting to note that quite a large ulcer developed on the growing frog of the left foot, which was very difficult to heal, and, after trying various medicinal agents, yielded to a mixture of tannic acid and crude creolin (2 to 1). Animal has been and is now working every day.

DISTRESSED BREATHING IN A COW.¹

BY J. F. BUTTERFIELD, V.S.,
MONTROSE, PA.

IN April, 1891, I introduced a tracheotomy-tube into the trachea of a two-year-old registered Jersey heifer belonging to Mr. M. W.

¹ Read before the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1898.

Palmer, of Kingley, Susquehanna County, Pa., to relieve the acute distressed breathing caused from internal and external swelling in a case of laryngitis or pharyngitis. She wore the tube from Sunday until Friday, when it was taken out, the swelling having subsided and breathing normal. The wound healed in due time.

About two years ago this same patient showed signs of distressed or labored breathing. It continued, and gradually grew worse until last July, when it was continuous. Could hear her several rods away; in fact, it was very distressing to hear her. Owner said I must remedy this in some way, so that it would be no trouble to him. Upon examination I found the two tracheal rings that were cut to introduce the treacheotomy-tube had flattened, nearly closing the trachea. To remedy this lesion I made a piece of No. 12 hard or spring silver wire into a speculum. I cast the cow in the usual manner, opened the two flattened tracheal rings, as in the first operation six years before, introduced the wire, and with a piece of soft silver wire fastened the upper end of the speculum to one of the tracheal rings that had not been cut, closed the wound with antiseptic dressings, etc.

On the cow regaining her feet she went out and commenced feeding as though nothing had happened. Not a cough or any symptoms of distressing breathing. Her owner, Mr. Palmer, writes me, March 3, 1898: "The cow is doing well, and in as good health and breathes as well as any in the barn; she dropped a nice heifer-calf in September, since the operation, which I am raising."

OPEN JOINT.

BY J. C. MICHENER, V.S.,
COLMAR, PA.

THIS case is reported to show what may be done with an antiseptic blister.

On February 5th a large, spirited, young horse broke loose and ran upon a ribbon, or flat-wire, fence. Striking it obliquely, his right front ankle slid upon the top of a wire, cutting the inside of the joint open its entire width from below upward. A neighbor, who makes and sells a horse liniment, was called and succeeded in arresting the hemorrhage by saturating cotton with his liniment and retaining by a firm bandage. Not much lameness at the time, and a quick recovery promised. By February 9th, when I was called, the horse refused to place any weight upon the foot and kept

it in almost constant motion, quivering and sweating and refusing to eat.

The synovia had trickled down over the hoof, congealing, like an ice-fall, reaching from the wound to the ground. The parts were thoroughly cleansed by a 10 per cent. chloride of zinc lotion, and the hair clipped from the entire joint. The blister ointment was well rubbed in and the wound plastered shut. Then a piece of muslin to envelope the joint was spread with a liberal coat of the ointment and retained by bandage.

In twenty-four hours found the horse resting his weight upon the injured limb, feeding, and looking quite cheerful. Allowed the blister and bandage to remain another twenty-four hours, when they were removed and the parts cleansed. The wound swollen shut. *No synovial discharge.*

Turned him in loose box-stall. Did well for four days, when he again manifested pain, and the next day the wound opened in the centre, the size of a straw, from which the synovia spurted when he moved. Applied the blister as upon the first day and allowed it to remain forty-eight hours. Had no more synovial discharge or lameness. The horse was put to work upon February 18th, and remains none the worse of the accident.

IS THE ACTUAL CAUTERY BENEFICIAL IN RINGBONE OR NOT?

BY CHARLES BLAND, V.S.,
ROXBOROUGH, PA.

I HAVE considered this subject for several years, and have come to the conclusion the horse can be cured of ringbone without the use of the firing-iron, provided you can impress upon the owner the necessity of rest for the animal; but if you cannot, by all means fire him.

I find it very hard matter, in the locality where I practice, to get rest for a horse, unless I have him in my stable and remove his shoes. My treatment is to cut the hair off, and apply hyd. chl. con., dr. j to aq. oz xvi., well rubbed in twice a day for a week, then wash with hot water; after three days repeat the treatment; continue this for a month, and in most cases I succeed in curing the lameness. As you are aware, there are many cases that cannot be cured at all, no matter what treatment you use.

¹ Read at the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1898.

You must remember an animal should not be put to hard work for several weeks after, and as horses are rising in price, owners will not mind giving us more time for treatment.

Another point: in case you do not cure you have not blemished the horse for the owner to everlastingly tell you and his friends about it.

No doubt many here will say the application is not strong enough; but I am satisfied we have been using too energetic means very often.

I have tried this treatment on spavins, and have relieved a number of animals, and cured some. When I began, and for several years after, I fired and blistered, but seldom do now.

TETANUS.¹

BY WALKER S. PHILLIPS, V.S.,
READING, PA.

THIS terrible disease is of nervous origin. It generally follows some operation or severe injury, and also frequently occurs from the pricking of the sole by a nail. As this affliction produces a peculiar irritability of the nervous system, it is of great importance to have the patient removed to a remote or isolated place, and kept as quiet as possible. In my treatment of these cases I have very seldom administered purgatives, but have taken advantage of bran mashes the first four to six days, to keep the bowels moving. During my thirty-eight years' practice I can recall sixteen cases, traumatic and idiopathic, which fully recovered, and none of which I placed in slings.

Treatment. Hypodermically, morphia, 3 grains, once daily. *Rx.*—Ext. belladonna, 8 drachms; laudanum, 4 ounces; chloroform, 4 ounces; alcohol, 2 ounces. *Sig.*—Given with syringe twice daily in one-half ounce doses.

This treatment I have often found to actually relax the muscles for a time, then again, would find them in the former rigid condition.

After the fourteenth or sixteenth day I generally consider the patient out of danger, but I still continue with this treatment six or eight days. Then daily doses of vegetable tonics, with nux

¹ Read before the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1898.

vomica and bromide of potassium, as there is in some cases a fear or nervousness for some time after.

Treated a gray, eight-year-old gelding some time ago. Thought it would recover. Found no wound or external cause; died the eighth day, and examination after death proved an internal injury.

Several months ago was called upon to visit a black gelding, eight years old, and found a wound just inflicted by the shaft of the wagon penetrating the scapular ulnarius muscles to the depth of several inches. Kept the horse in a box-stall five or six days. Wound nearly healed; swelling subsided; the animal appeared all right, was hitched and driven six or eight miles. About three days afterward I was called in, as the owner said the horse appeared stiff; found him very nervous and excited; could scarcely approach him. Found all the symptoms of tetanus, with the exception of the membrana nictitans not covering the eye as in all cases, and the tongue protruding from the mouth, not swollen, but for one inch was perfectly dark. Upon gently pushing it back into the mouth, it would remain for some time. No other dark or purple spots found. The animal died in about thirty-eight hours.

WHAT PENNSYLVANIANS ARE THANKFUL FOR.

A PROSPEROUS, advancing, and united State organization.

For several earnest and aggressive local societies.

That our Veterinary Department has now a veterinarian as Dean.

For one of the most harmonious State Livestock Sanitary Boards, and of the excellent work it is doing for every interest concerned.

For the presence within our borders of one of the most enterprising veterinary journals.

For a State Veterinarian whose interest in the welfare of the whole profession is broad and generous.

For a Governor who has many times shown his keen appreciation in the value of veterinary work throughout our State.

For a biological laboratory where veterinarians are largely employed, and where are produced most excellent products for veterinary uses.

For a State Veterinary Examining Board and proper laws for the regulation of the practice of veterinary science.

For a large number of members of the profession whose increasing years add only to their keener interest in veterinary progress.

For the prospect of adding to the world's progress in an experi-

ment building specially designed for the study of infectious and contagious disease of livestock.

For the growth and increased recognition of her veterinarians and their work as such on municipal boards of health, departments of public safety, and by individuals and corporations handling large amounts of dairy products.

For the special interest in our work of many of the health bodies of our State and many members of the medical profession.

For the increased interest in our Veterinary Department by Provost Harrison.

For the increasing interest of the members of our profession in the work of the national organization.

For the promised return of better times among our livestock industries and a greater demand for our services.

For a promised gathering at Pittsburg at our semi-annual meeting in September, the largest in our history.

For officers in all our veterinary organizations whose fondest hopes are to outrival in progress their predecessors.

NOTES FROM THE UNIVERSITY OF PENNSYLVANIA VETERINARY DEPARTMENT.

THE examinations in the special course in horseshoeing will be completed early in April.

A dog-ambulance has been added to the equipment of the hospital.

The capacity of the hospital for small animals has been enlarged by the addition of six cages of special design, which can be used for either cats or small dogs.

The early graduates of the Veterinary Department were surprised and gratified to see the changes and improvements that have been made in the school and surroundings during the past year.

Some very instructive investigations in relation to the milk of tuberculous cows are now under way, the milk being derived from three fresh cows in the tuberculous-cattle section of the hospital.

The clinics have been larger during the past year, and a greater number and variety of cases have been presented for examination, demonstration, and treatment, than ever before in the history of the Veterinary Hospital.

The regular Monday afternoon "field-work" for last week consisted in a visit to the Pasteurizing plant and milk-depot of the largest milkdealer in Philadelphia, Mr. George Abbott. Next week the senior class will visit some dairy and breeding-farms in Chester County.

During the past year ten of the recent graduates of the school have received official veterinary appointments.

It appears that a new avenue for veterinary work is opening—there is a growing demand for veterinarians to act as managers of stock- and dairy-farms.

The new course of lectures on veterinary jurisprudence, ethics, and business methods, by Dr. W. Horace Hoskins, has developed as everyone expected, and has been most interesting and instructive. College instruction on these subjects has never, heretofore, been a prominent feature, in America at least—perhaps on account of the difficulty of obtaining a lecturer competent to handle the matter; but the success and value of the present course will probably make it a permanent part of the curriculum.

In a few months the street in front of the buildings will have been so improved that the whole aspect of the institution will be changed. The city has ceded Pine Street from Thirty-sixth to Thirty-ninth to the University, and it is being rapidly transformed from a poorly paved city street into an attractive parkway.

Following the very interesting lecture on pigeons by Mr. Atwood B. Hoskins, the Veterinary Society was fortunate in obtaining the services of Mr. Thomas Sharpless to lecture on swine, with especial reference to Chester Whites. Mr. Sharpless's long and successful experience as a breeder, and his careful study of the problems of this art, together with his high culture and facility of expression, make a combination of rare qualifications.

CONCERNING the results of Dieckerhoff's treatment for azoturia, District Veterinarian Schmidt gave five horses with azoturia one hundred grammes of bicarbonate of soda every four hours. Three horses were cured in three days, one in five days, and the other was killed on account of extensive injuries.

The New York State Veterinary College has received one hundred and seventy-five thousand dollars from the State Treasury.

EDITORIAL.

THE INAUGURATION OF STATE EDITIONS OF THE
"JOURNAL."

WITH this number we inaugurate a series of State Editions of the JOURNAL. We trust that this plan will meet the hearty co-operation of the profession throughout the country, and that the States desiring, in this way, to promote their interests professionally, scientifically, and socially will loan their best efforts in sustaining this movement.

Association officers and members will be given great latitude in their efforts to thus strengthen their organizations, and sanitary work and movements will be aided and promoted in proportion to the efforts put forth by those who should lead in this work. Our editorial columns will be open for all State subjects, and every phase of State work will be voiced in our columns. Legislation—State, municipal, and local—will be touched upon, and the opportunity thus afforded will be unique and, if well used, of the greatest advantage to all.

Extra editions will be issued each month, and our special State lists of veterinarians, physicians, boards of health, agricultural and breeders' association officers, and many others will each be favored with a copy, and we trust that much good will flow forth to all.

We issue this month the Pennsylvania Special, and May will be for the Empire State, and the other States as the material is contributed.

DON'T HIDE YOUR LIGHT UNDER A BUSH.

THE recent action of the Iowa State Association in officially deciding to deny to the journals their transactions, reports, and papers, because the latter cannot furnish extensive reprints without cost, in justice to themselves, and the adoption of a muzzling order upon all those who present papers, reports, etc., and forbidding their copyrighting the same as individuals, or placing in copyrighted publications, is a narrow and very selfish aspect of professional brotherhood and duty. It is a breach of the highest and best professional etiquette, and a denial to their professional brethren beyond the confines of their own State that which every fraternal thought and spirit commands as a duty one to another. This

is specially so when the history of every journalistic effort in this country has been one of self-sacrifice on their behalf, without a dollar of return; nay more, the journals of this country have been published at a loss of thousands of dollars to their projectors, not to speak of the time and effort given by editors and promoters without a dollar of compensation, and personal sacrifice of hours of time that would have brought money had they assumed so selfish a spirit or taken so narrow a view of the welfare of the profession and its advancement. Wipe this obnoxious resolution from your records. Veterinary journalism is yours to support and advance. Let your light shine out for the whole world to see and profit by. Sustain every ethical requirement. Your society is not a trades union. While organized specially for Iowans, in general, it is for the whole veterinary world.

ONTARIO'S BAD EXAMPLE CONTINUES.

WE wish to extend to the veterinarians of Ontario our most sincere and heartfelt sympathy. It is the function of veterinarians not only to cure diseases, but to prevent them, to the greatest possible extent; and it is for the purpose of avoiding loss from disease and protecting the livestock industry that veterinary schools have been established and are supported by so many enlightened governments. It is recognized almost universally—the exceptions being Ontario and a few other places—that matters relating to the care and preservation of the health of animals, and especially when it is desired to avoid the effects of any infectious disease, should be planned and executed by veterinarians. Measures for the extermination of a pestiferous insect must be directed by an entomologist; the matter of improving the orchards of a State must necessarily be under the care of horticulturists. If the Government desires an investigation of the mines of a region it employs skilful and experienced mining-engineers. If material for an engine, gun, or vessel is to be examined and tested, it is sent to a suitable laboratory where the work can be carried out by mechanical engineers, metallurgists, chemists, or other experts in the case in point. But when it comes to tuberculosis of cattle, Ontario disregards all of these well-established precedents and principles, and appoints a certain lieutenant-colonel to instruct the farmers how to make tests of their own cattle, and apparently does not realize the inevitably disastrous result of this procedure.

We have the kindest feelings for our Canadian neighbors. We

realize that many of the best-bred and most perfect specimens of nearly all breeds of domestic animals to be found in North America are in Canada. The annual fair at Toronto brings together the best collection of pure-bred livestock that can be found on this side of the Atlantic Ocean. We appreciate the benefits that the livestock interests of the United States have derived from the infusion of the fresh and high-class blood of Canadian animals. The Canadian breeders possess in a very high degree the inborn love for animals, and the natural and acquired aptitude for maintaining breeds that are so rare even among handlers and breeders of livestock. So it is probable that the United States will need to continue for many years to draw upon the livestock of Canada for improved, high-class animals. For this reason the action of the Canadian authorities in dealing with tuberculosis of cattle is of the highest importance to everybody interested in the improvement and health of the cattle of the United States. Many of our Eastern States now have laws providing for the inspection of cattle with tuberculin before they can be admitted into those commonwealths. A tuberculin-test of cattle coming from Canada is also required by regulation of the Bureau of Animal Industry. A large and constantly increasing number of our most progressive breeders require a test with tuberculin before breeding animals can be added to their herds. There must be a reason for these regulations. It is that tuberculosis has caused enormous losses in some of our best herds. Breeders have learned not only to fear it, but they have learned how to guard against its ravages, namely, by starting with healthy cattle and admitting to their herds only such cattle as have been proven to be free from tuberculosis. Can purchasers of Canadian cattle have this guarantee? Evidently not. It is well known that cattle that have been tested with tuberculin frequently fail to react upon a second test, although they may have presented a high and characteristic reaction at the first test. Now, if the Government of Ontario is to encourage, as it is unquestionably doing, the general and indiscriminate use of tuberculin by men who have absolutely no knowledge of this substance or of diseases, it must be clear that tuberculin-tests applied to Ontario cattle must have but little value. Again, what is done with the cattle that are condemned in these unofficial tests? Echo answers—What? Sold for export to the United States?

In the last number of the *Ontario Agricultural Gazette*, which is described as the official bulletin of the Farmers' Institute system of the Province of Ontario, there appears a little article on tuber-

culin by the bacteriologist of the Ontario Agricultural College at Guelph. It appears from this article that tuberculin is made at the Agricultural College and sent out to applicants in Ontario. It is supplied to farmers desirous of testing their own cattle, free of charge, while veterinarians are discriminated against, and are required to pay ten cents per dose. It is also stated that although reports are desired, no name or address is asked for, simply the record of the test. It is indeed strange that the Ontario authorities cannot see what must be perfectly clear to all who have had experience with this disease, namely, that the method adopted by them is sure to bring the tuberculin-test into unjust disrepute in Ontario, will injure confidence in and the reputation of Ontario cattle abroad, and must in the end work material injury to the livestock interests of that country. What, then, is the purpose of this exceedingly remarkable procedure? No good can come from it, much injury must result from it, and the only possible, and perhaps the most charitable, explanation that appears upon the surface, is that a certain lieutenant-colonel wanted a position, and had influence enough to get one at any cost.

PENNSYLVANIA'S ANNUAL MEETING.

PENNSYLVANIA held in March one of the largest and most successful State veterinary meetings ever held in the history of the profession. Over one hundred and thirty veterinarians were present at the several sessions of the meeting, and the greatest interest was evidenced on all sides pertaining to the work of our profession. Excellent reports, papers, and lectures were presented, and, with a sumptuous banquet spread for the guests by Dr. Leonard Pearson, it was, all in all, one of the great pleasures of these times to have been there.

AT IT AGAIN.

PERIODICALLY some veterinarian or physician in Germany is suddenly attacked with a severe case of hysterics. The malady takes on various forms, according to the conditions at hand. If there is a piece of American meat anywhere near, harrowing shrieks are uttered to the public, denouncing the Yankee products as injurious to health. The latest case of hysterics has resulted in an article in the February number of the *Zeitschrift für Fleisch und Milch-hygiene*, and was superinduced by the finding of some nodules

in American sausage-casings. Ignorant of the literature, the author pronounces the casings tubercular, and bewails the fact that Germany subjects herself and her inhabitants to the dangers alleged to be connected with importing American products. The intestines in question are of bovine origin, and the account of the lesions is an excellent description of a parasitic disease which is not transmissible to man. If our German confrère will look up the published accounts of *Oesophagostoma columbianum*, he will probably change his diagnosis.

AN instructive commentary on the trichina question in Germany has just been published by Prof. Ostertag. A trichina inspector thought he found a peculiar parasite in one of his preparations; the supervising microscopist examined the slide and agreed that the structure in question was a parasite, but was unable to determine it. The preparation was then sent to one of the students of the Berliner Tierärztliche Hochschule for his opinion, and was finally submitted to Professor Ostertag for definite diagnosis. Ostertag recognized the alleged parasite as a "piece of hair!"

THE financial difficulties that threatened the progress of the work of the Pennsylvania State Live-stock Sanitary Board did not materialize, and this work is progressing as before. The storm of indignation that arose and was voiced by the press of the whole State when it was suggested that the board might be obliged to discontinue operations for a time constitutes an encouraging and hopeful indication as to the drift of public opinion on veterinary sanitation.

NECROLOGY.

GEHEIMRAT RUDOLF LEUCKART.—We regret to announce the death of Geheimrat Rudolf Leuckart, Professor of Zoölogy and Comparative Anatomy in the University of Liepsig. Leuckart's name is too well known to veterinarians to need any commentary on his work. As the founder of the modern school of parasitology, and as the discoverer of many important facts in connection with the structure, life-history, and classification of animals, his name will be known as long as zoölogy is studied.

SOCIETY PROCEEDINGS.

ANNUAL MEETING

OF THE

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

AS TOLD BY A STAFF CORRESPONDENT.

BEAUTIFUL weather and bright environments made auspicious the opening of the Keystone State organization's sixteenth annual meeting, at the Veterinary Department of the University of Pennsylvania, at 10 o'clock on the morning of March 8, 1898.

President Rayner looked upon a larger number of faces than had ever been gathered at a single meeting in Pennsylvania's history in the veterinary profession. The roll-calls on the 8th and 9th showed the presence of more than sixty members, as follows: Drs. John W. Adams, Francis Allen, Philadelphia; J. C. Bartholomew, Berwyn; W. G. Benner, Doylestown; Henry Bowers, Philadelphia; John L. Bradley, Mercersburg; Francis Bridge, Philadelphia; J. F. Butterfield, South Montrose; A. O. Cawley, Milton; M. J. Collins, Myerstown; M. E. Conard, West Grove; H. B. Felton, Olney; J. T. Ferley, Philadelphia; J. C. Foelker, Allentown; Robert Formad, Philadelphia; Robert Gladfelter, Philadelphia; Charles T. Goentner, Bryn Mawr; S. J. J. Harger, Philadelphia; Walter L. Hart, Philadelphia; F. F. Hoffman, Brookville; E. Hogg, Kirkwood; W. Horace Hoskins, Philadelphia; Joseph D. Houldsworth, Manayunk, Philadelphia; Horace P. Keely, Schwenksville; Z. S. Keil, Perkasio; Edward L. Kellner, Philadelphia; W. H. Knight, Kennett Square; W. S. Kooker, Philadelphia; J. M. Kuhn, Mercersburg; S. D. Larzelere, Jenkintown; Charles Lintz, Chester; L. O. Lusson, Ardmore; C. J. Marshall, Philadelphia; J. C. Michener, Colmar; W. B. E. Miller, Passaic, N. J.; E. S. Moyer, Blooming Glen; James T. McNulty, Philadelphia; J. C. McNeil, Pittsburg; Otto G. Noack, Reading; J. H. Oyler, Harrisburg; Leonard Pearson, Philadelphia; William P. Phipps, Lionville; A. W. Radley, Bethlehem; G. B. Rayner, Manayunk, Philadelphia; Thomas B. Rayner, Chestnut Hill, Philadelphia; James B. Rayner, West Chester; John B. Raynor, Milestown, Philadelphia; N. E. Reinhart, Pottstown; W. L. Rhoads, Lansdowne; W. H. Ridge, Trevoise; James T. Ross, Frankford, Philadelphia; J. W. Sallade, Pottsville; Charles Schaufli, A. F. Schrieber, B. F. Senseman, Philadelphia; H. W. Turner, Labraska; E. E. Terry, Holmesburg; B. M. Underhill, Media; R. G. Webster, Salem, N. J.; Charles Williams, Philadelphia.

Ten new members were added to the roll, of whom the following were present at the meeting: Raymond Barber, V.M.D., Newtown; H. D. Hacker, V.S., A. N. Lushington, V.M.D., E. M. Ranck, V.M.D., and W. G. Shaw, V.M.D., Philadelphia; J. Stewart Lacock, V.M.D., Allegheny; and George W. Swank, V.M.D., East Mauch Chunk.

The visitors from all over the State, from New York, New Jersey, and

Delaware were greater in number than ever before, and among them were to be noted: E. B. Ackerman, D.V.S., Brooklyn, N. Y.; H. P. Eves, V.M.D., Wilmington, Del.; John Faust, V.S., Poughkeepsie, N. Y.; William Herbert Lowe, D.V.S., Paterson, N. J.; C. E. Magill, V.M.D., Haddonfield, N. J.; Mr. Joseph Matlack, Maple Shade, N. J.; James M. Mecray, V.M.D., Maple Shade, N. J.; J. Cheston Morris, M.D., M. P. Ravenel, M.D., and Dr. Woodward, of City Board of Health, Philadelphia, Pa.; Drs. U. S. G. Bieber, Kutztown; J. M. Eshleman, Parkersburg; J. Z. Hillegass, Red Hill; N. C. Lazarus, Stroudsburg; Charles Leonard, Dover; A. R. May, Boiling Spring; L. E. Mead, Tunkhannock; W. A. Meredith, Corry; Harry B. Rayner, Norristown; E. E. Tower, Montrose; Charles J. Waidner, Hellertown, Pa.; Mr. George Abbott, Drs. J. F. Connor, M. W. Drake, Alexander Glass, Mr. G. H. Gordon, Drs. James Johnston, A. L. Lehman, C. H. Magill, H. D. Martein, Frank C. McCurdy, W. B. Montgomery, E. Stanton Muir, Edward O'Connor, John A. Pearson, J. Price Vasey, Otto von Lang, Mr. J. J. Teufel, Mr. F. R. Trowbridge, Philadelphia; Mr. S. G. Brosius and W. H. Smith, Jr.

The attractions of so many prominent practitioners, to hear them discuss the excellent papers, reports, etc., proved a strong incentive to the student body of the University's Veterinary Department, and noted as being present were: Messrs. L. L. Cheney, G. E. Chesley, E. L. Cornman, A. E. Cunningham, M. Jacobs, Joseph Johnson, Jr., Philip K. Jones, L. D. Horner, H. Hoopes, William Hughes, C. F. Keiter, Bassett Kirby, C. G. Land, S. W. McClure, John H. McNeill, Joseph N. Megary, Jr., J. P. Miller, L. A. Nolan, W. E. Phillips, John J. Repp, J. E. Spindler.

After the reading and adoption of the minutes of the semi-annual meeting, President James B. Rayner, of West Chester, one of the earliest practitioners of Pennsylvania, delivered his annual address. It was listened to with marked attention, and was worthy of the occasion.

The President's Address.

The assembling to-day of our Association in annual convention is an occasion worthy of more than passing notice. It marks another period of our history, and it is well for us to look back and note how well the year's work has been done. I am proud to say that I have had the earnest support of my fellow-officers, and that much work has been done looking to the welfare of our calling. Our semi-annual meeting at Franklin was, perhaps, the most successful we have held during the past ten years, in attendance, in scope of work, in pleasure, in increased membership, and everything that adds to our progress.

When I recall the early history of the profession in Pennsylvania, at a time when many of you were not born, and that the Philadelphia Veterinary College was the first lawfully chartered veterinary college in America, and note the same intense interest in professional advancement, I am more than proud of our record in the profession. While this college remained but a few years in active teaching, still its influence was good; it led to the first movement to establish a veterinary chair in the University of Pennsylvania, and two of the foremost pioneers in medicine and surgery urged its importance and advocated its establishment. I refer to the honored names of Professors Gross and Elwyn, who joined with Professors McClure and Jennings of our own branch of medicine. At that time our University was on Ninth Street, and the little room it had, made it next to impossible to establish this department. The Philadelphia College, with but few students each year, not enough to support it, without State or private assistance, was compelled to close during the session of 1865-1866. The Uni-

versity, moving to West Philadelphia a few years later, still appreciating the importance of this branch of scientific study, kept fully alive to its necessity, and established this department in 1883, with our esteemed colleague, Prof. R. S. Huidekoper, as Dean, with Drs. Zuill, Hoskins, and Glass as instructors, and its work of recent years in sending forth well-equipped and efficient veterinarians is known to you all.

In association work our State has an enviable reputation. It had a number of its practitioners among the roll of organizers of the United States Veterinary Medical Association, formed in 1863. The aim, then, of contributing to the diffusion of true science, and particularly the knowledge of veterinary medicine and surgery, is still its motto and field of work, and to-day with its membership of over four hundred, are to be found working along, shoulder to shoulder, many of the earnest workers in veterinary science in the Keystone State.

The first Pennsylvania Association was organized in 1865, and it continued in more or less active existence until 1883, when its most active members joined with others in the formation of this Association, which chose for its first President our still active and worthy member, Dr. James W. Sallade. With many graduates of the American, New York, and Canada Colleges, and a large number of excellent practitioners, this organization has marched on for almost a score of years, more earnest and faithful to all its duties with each added year of its existence, until it has a well-earned reputation, second to none, for good work.

The Keystone Veterinary Medical Association of this city and vicinity, organized October 7, 1882, has continued in active existence ever since its first meeting, and added each year its assistance to the welfare of the veterinary profession. More active than ever, its work during the present and past year has made each of its members justly proud of its labors and achievements.

With our other local associations of the Schuylkill and Wyoming Valleys, most of whose members are active in this organization, I assure you, fellow-members, I am justly proud of the record made by Pennsylvanians, and I am more than proud of the honor of your recognition as President of such a body of earnest men, and after an active career of nearly forty years in the pursuit of veterinary practice, the greatest honor I could wish for has been bestowed upon me by this organization, and at a time when illness prevented my presence, but your recognition and esteem was never worn more proudly and with more earnest and devout wishes for the good of you all than my whole heart has wished for the advancement and welfare of one and all of you.

I now welcome you all to Philadelphia, and invite your close attention to the excellent programme that has been prepared for you, and to every enjoyment of it possible.

The nomination of officers for the ensuing year was a feature of much interest, and for the first time in the Association's history the sentiment seemed to prevail that the office of President should go to the western end of the State, and while the warmest appreciation was exhibited on every side for one of the most popular members of the eastern section of the State, whose name was presented, thus placing in the field Dr. George B. Jobson, of Franklin, and Dr. M. E. Conard, of West Grove, the latter before the vote was cast made one of the most grateful concessions by the withdrawal of his name, and thus made unanimous the selection of the Mayor of Franklin for President. It was a happy solution for all those who fully appreciated the worth of Dr. Conard, but who felt the time had come to yield to the prevailing sentiment that the chief office should rest this year in the west. The selection of officers resulted in the following choice: President, Dr. George B. Jobson, Franklin, Pa.; for First Vice-President,

Dr. J. Curtis Michener, of Colmar; for Second Vice-President, Dr. J. F. Butterfield, of Montrose; and for Third Vice-President, Dr. F. F. Hoffman, of Brookville; for Recording Secretary, Corresponding Secretary, and Treasurer, the outgoing officers, Drs. Jacob Helmer, W. L. Rhoads, and Francis Bridge, were recalled to the duties of these offices, which had been so well filled during the past year, and a unanimous vote was accorded them. By virtue of unforeseen circumstances at the last moment, the Recording Secretary, Dr. Jacob Helmer, was detained at home, and in accordance with the rules, this work fell to the lot of the Corresponding Secretary, who found his hands full at all times during the very busy meeting.

Some ten names were presented for places upon the Board of Trustees, resulting in the election of the outgoing President, Dr. James B. Rayner—a plan to be followed that the Association's interests may have for another year the value and aid of the retiring chief officer—and for the other four, Drs. W. Horace Hoskins, of Philadelphia; W. H. Ridge, of Trevoise; J. C. McNeil, of Pittsburg, and James W. Sallade, of Pottsville, proved to have the highest number of votes, thus placing the Association interests well geographically and among those who have for many years been ardent in Association work and professional advancement.

The Board of Trustees, with Drs. W. H. Ridge, W. Horace Hoskins, and S. J. J. Harger present, were reinforced by appointment of the President, with the assistance of Drs. Thos. B. Rayner and Robert Gladfelter, and after a half hour's recess, during which time the Secretary and Treasurer were active in collecting dues, reported with a favorable recommendation the names of the following applicants: Drs. Wm. G. Shaw, A. N. Lushington, Edward M. Ranck, of Philadelphia; J. Stewart Lacock, of Allegheny; G. W. Swank, of East Mauch Chunk, graduates of the University of Pennsylvania Veterinary Department. Drs. H. D. Hackler, of Philadelphia; M. W. Keck, of Slatington; S. B. Bishop, of Carlisle, graduates of the Ontario Veterinary College. Dr. R. J. Mumma, of Hanover, graduate Veterinary Department, Columbia University, and Dr. R. G. Rice, of Towanda, graduate New York College of Veterinary Surgeons. All the recommendations of the Board were approved and the above applicants elected to membership in the Association, those present being introduced by the President.

Corresponding Secretary Rhoads made a brief report, accompanied with many letters of regret from members and others, also the resignation of Dr. P. K. Driebelbis, which was referred to the Board of Trustees, who finding nothing against the member, his dues paid, recommended its acceptance, which was adopted.

Treasurer Bridge made a partial report, which was supplemented by the committee directed to audit the late Treasurer's account reporting his books in proper order, the bills directed to be paid, properly indorsed with accompanying orders, and a balance due the Association of \$68.27, all of which was approved pending final audit and settlement.

Committee reports proved of unusual interest. Some three of the Committee on Intelligence and Education offering specially well-prepared reports, which are as follows:

Report of Committee on Intelligence and Education.

When we look back and see what changes have been wrought in our profession we wonder how they were brought about. The demand to-day is

for more and better education. In all fields of activity competition has become so great that the uneducated find it difficult to gain a livelihood. We do not intend to review the past, but we cannot refrain from commenting on the great difference in the demands of our colleges to-day in regard to entrance-examination. Can the examination be too high? We think so. We, to-day, have a much better grade of men entering our colleges than ever in the past; our colleges also are advancing very rapidly, adding more and better teachers to their staff. While these colleges are not self-supporting, generous public donations enable those who desire to gain an education. If it were not for this general interest of the public, with that kindly feeling toward us, we would advance in a much slower manner.

As we have only one veterinary school in this State, we are pleased to note advances made by it. Dr. Leonard Pearson has been made Dean. This is as it should be. While the department has been managed by an able man, and a good friend to the veterinarian, we cannot but think that the department will advance, and the students take a greater interest in it by having such an able veterinarian at its head. Dr. W. Horace Hoskins has been added to its staff of teachers, lecturing on jurisprudence, ethics, and business methods; this has added materially to the strength of the course. To-day the study of bacteriology is all important, and the needs of a good teacher. This school is fortunate in securing the services of Dr. M. P. Ravenel as teacher. Our member, Dr. C. J. Marshall, has the appointment of demonstrator of theory and practice of medicine. This school is working very harmoniously, and there exists the kindest feeling toward it by the public.

Other schools are doing their good work, advancing in a rapid manner. Some of our New York schools feel that they are handicapped by the law in that State governing the entrance-examination. We fear this will debar many men who would in later life prove to be able practitioners. Education takes in much more than answering a few questions that the examiners happen to ask, or what in their judgment one should know. Also some minds are capable of being taught in special branches much easier than in others, thus one person may become an expert surgeon, yet never could have become a classical scholar. We would not debar anyone from taking a course in veterinary medicine on account of his previous education, but only advise him of his chances, then if he takes the risk and passes his final examination satisfactorily, he should receive his diploma.

Our journals are one of the greatest sources of education that the veterinarian could be interested in. While our days at college are over to the majority of us, we still need instruction. Man can never remain in one place, nor can he remain at one degree of intelligence; he either progresses or goes backward. None want to be relegated to the past because of not keeping abreast of the times, so we depend upon our journals to point out our deficiencies. Of course, all have noted their great advance this last year or two. They are better edited, better printed, and have better articles than ever in the past. There is one point we see extended, that is, personal items and news. We want to know what our friends are doing and what is transpiring in our veterinary world. We hope that none of our members attempt to practice without our journals; they are as essential as medicine. We would like to see a few pages added monthly, devoted to judging of livestock. If there is one branch the veterinarian is deficient in more than another it is the judging of pedigrees and points of excellence of breeds. This should not be so. The judges of our fairs, etc., should be taken from the ranks of the veterinarian when such qualified men can be procured. Our students should be taught to judge by points of excellence, and give their reasons for it. To quote from an article written by Dr. Curtis, who says, "The judging at some of our own State fairs, where we expect a higher grade than at a county fair, is often simply a burlesque. At a State fair recently held, one of the judges, who assumed a degree of arrogance

and importance equal to several ordinary men, and wisdom superior to several ordinary owls, did not know anything about swine-herd books, or standards, or requirements of associations to constitute thoroughbreds, but he 'knew a good hog and one which suited him.' Under the dictation and awards of such a judge the exhibitors of all breeds stood back in disgust, and let the thing run. How could anyone learn from such a decision in regard to characteristics, or qualities of any breed, or the valuable and best features in breeding. I would make the exhibit of as great practical value as possible, as this would add to the attractions of the fair; when people found out that teaching by object-lessons would take place, and by noted and accepted teachers, they would flock around the rings where stock was being judged, and the pens, to compare the points and evidence of value." Now, we often hear our veterinarians say, "the veterinarian is the proper person to judge stock." We ask, are they qualified? Do our schools teach them so as to be efficient judges? The veterinarian of the future will have to be educated on more branches, and as his services are called by men high in the art of breeding, his ability is often judged by his conversation in regard to breeding or points of excellence; the mere individual ideas of perfection are oftentimes worse than no ideas. Our journals could teach us a vast amount on this subject. When a subject appears before us often that we know very little about, it shows us our weakness, and stimulates us to action; even the publishing of the questions of an examination oftentimes fills one with fear that he is regressing. How often do our journals notify us that we have forgotten something or that we are not as qualified as the times demand, and make us devote our spare hours to study.

New books are second only to our periodicals. During the last year we have had additions that are worthy of high commendation. Dr. Alex. Glass, a member of this Association, has added a translation of Professor Müller's *Diseases of the Dog*. Dr. John Adams, also one of our members, has added a translation of A. Lungwitz's text-book on *Horseshoeing*. Dr. W. E. A. Wyman is the author of *Clinical Diagnosis of Lameness in the Horse*. Dr. George G. Van Mater has contributed *Veterinary Ophthalmology*. The *Veterinary Blue-Book*, by Dr. R. S. Huidekoper; *Diseases of Swine*, by D. McIntosh; *Exercises in Equine Surgery*, P. J. Cadiot, translated by A. W. Bitting; *Biological Products Indicated in Veterinary Practice*, by H. K. Mulford Co.; *Reports of Bovine Tuberculosis*, by M. H. Reynolds; *Handy Manual of Veterinary Medicine*, by M. Stalker; *A Compend of Veterinary Obstetrics*, by W. H. Dalrymple; the third edition of Walley's *Guide to Meat-inspection*; *Text-Book of Comparative Pathology and Therapeutics of Man and the Domestic Animals*, for the veterinarian, physician, and student, in four volumes, by George Schneidermuhl, in German.

The people of this country are realizing that we are advancing. We believe nothing has educated the public in this direction faster than our Association. We see in our daily papers, farm journals, etc., that our profession is being honored in many ways. In the *Rural New Yorker*, of a late issue, the following was printed: "The New York State Board of Health has been expending a little money in testing the dairy herds at State institutions. This serves to protect the inmates from diseased milk, and sets a good example. The article on our first page tells how these tests are conducted. While we are thinking about the State Board of Health, it occurs to us that a veterinarian or two would not be out of place upon it. Very likely, it must have to pass upon the fitness of men for herd-testing, and physicians do not get such training in comparative medicine as would be useful in that event. Then our brothers of the yoke and stall have many of our ailments, and we theirs." This shows us that the farmer does not dread the appearance of the veterinarian, as some prophesied a few years ago, when the examination of tuberculous animals was commenced, but are looking to us to help the public, and are placing the confidence in us that is justly due our profession. Our associations are educators that many fail to make use of.

Few realize the importance of being members of our associations. We see it in this State. It has always been a wonder to me why the majority of our profession remained outside the ranks of membership, when the interests of one was the interest of all. In some occupations the interests are different in different sections. What suits one neighborhood does not suit another. Organizations conflict with one another, while with us we have the same questions for all points. We deem it the duty of every qualified veterinarian to belong to our National Association, so as to give it power and recognition. We must not look to self-interest entirely. It may not benefit us directly. If a small proportion of the profession has advanced the standing so fast in these last few years, how much faster and easier could they have done it with your help? United, we progress and are recognized. Divided, we become "hoss-doctors." W. H. R.

Our men should be more active in national legislation that especially refers to our profession; such laws as involve the employment of our men in the meat-inspection and quarantine service and experimental work. Every veterinarian should, through his Congressman, keep in touch with the work of the Bureau of Animal Industry, by having his name placed on the list of those to receive the bulletins and reports of the Bureau. We note the advancing intelligence of the public on sanitary questions, milk- and meat-inspection, and the duty of the veterinarian in spreading this education. Our duties in aiding the State Board of Health measures, and thus increasing their interest in similar lines, especially interest us. Gov. Hastings deserves credit for the appointment and recognition of Dr. Benjamin Lee as health officer. Our interest in the milk question involves the commercial aspect in so far as proper methods for its safe distribution, but more especially in its production from healthy animals and under proper sanitary conditions. Our veterinary milk-inspectors should be more active in advancing legislation along such lines as have been long indicated as destined to remedy many of the grave existing defects which the profession looks to them to direct and secure, that this work may be extended and reach a higher state of perfection, whereby the field of work of our profession may be enhanced and enlarged. Progress in this direction has been too slow, indeed. Our profession has been more willing to follow than eager to lead. The excellent work of our State Sanitary Board has been aggressive, yet conservative, in its methods, and much of its work has received marked attention and recognition in many other States. Its bulletins have been carefully and thoughtfully prepared, and it has been a source of gratification to note their reception by our own people as well as by the authorities in other States. We are justly proud of the work done by this Board, and rejoice in what it has accomplished, and while Pennsylvania is more than willing to extend a helping hand to sister States, we are extremely pained to note that those charged with the same line of work in the Empire State should be so forgetful of its duty, as well as its obligations to our Board, by pirating from the tuberculosis bulletin issued by our Board, clothing it with evidence that would lead one to believe it emanated from the authorities of that State, no credit being given to the officers of our Board under whose direction it was first produced.

In the way of new books we have a number that have emerged from the printers' hands during the past year. Among others, the translation from the German of Müller's *Diseases of the Dog*, by Dr. Alex. Glass, the first scientific work on canine pathology that has been presented to the English-speaking and reading veterinarian. A *Clinical Diagnosis of Lameness*, prepared by W. E. A. Wyman, covers a very interesting and important part of our work, and its presentation in this form will be a very great aid to the everyday practitioner. Kobert's *Toxicology*, translated by Prof. Friedburg, of New York City, brings to us one of the most excellent works in the German language on this all-important subject. The arrangement is well

adapted for quick consultation and prompt decision as to the proper course of treatment. The *Veterinary Blue-Book* has just reached us, and is thoroughly characteristic of its compiler, our colleague and late President, Prof. R. S. Huidekoper. It embodies in every way much more than it promised—the incorporation there of the various laws, national and State rules, regulations, and officers of so many important organizations all over the country in which we are much interested; the regulations of all common carriers, railroad, express, steamship, etc., make it an invaluable ready-reference book; the long list of names of the veterinary profession in New York State, and the more prominent ones throughout the United States, with much information about them; the officers of the National and State organizations, and much other matter of equal importance and interest. One's office desk will be incomplete without it. Another work that has come to us on an all-important subject, that of *Veterinary Ophthalmology*, by George G. Van Mater, deals with a subject of the utmost importance in equine and canine pathology, and it is unfortunate that the author has clung so closely to human ophthalmology, and, with a limited experience in comparative practice, has not given the prominence to the consideration of those diseases of so much daily practical importance to us in our profession. It is to be hoped that in the revision of this book these grave defects may be remedied, or that it may suggest the need of a book fully covering the subject from a wholly veterinary standpoint. A shorter and more concise work on veterinary obstetrics, especially adapted for students and their instruction, has been brought forth under the direction of Dr. W. H. Dalrymple, who as an instructor realized the need of such a work. The well-known ability of the author as an able practitioner, as well as instructor in several of our agricultural colleges, peculiarly fitted him for the preparation of such a work, and we are sure it will be equally well appreciated by those it is destined to benefit. We are well pleased to note the improved condition of our veterinary journals, which should be more generally supported.

W. S. K.

Report of Dr Otto G. Noack, of the Committee on Intelligence and Education.

The veterinary profession has difficult and important duties to fulfil—saving the wealth of the nation and protecting the lives of the people against diseases transferable from animal to man, therefore demanding the highest standard of education, preliminary and collegiate, from the students who intend to join the ranks of this high and noble profession. Experience has shown only men whose minds were well trained, and who had gained a thorough education, were able to promote the profession, and I am glad and proud to say that our State has quite a number of such men, men who with higher education have the welfare of their profession at heart, they being the prime movers of a higher standard in veterinary science, not only in our Commonwealth but in the whole United States.

I am sorry to state that one point is neglected. The preliminary education which is asked for matriculation in the Veterinary Department of the University is not high enough, and it is time to follow the example of the Empire State, where a thorough preliminary education for entering the veterinary college is required. Such a move would place us on the same basis with the European colleges and make the profession in this State equal to the standard of any other profession. At least a proper knowledge of Latin and Greek should be demanded before entering college, so as to understand the new and strange expressions the student hears in the lectures. If this had been asked many years ago we would not have such a conglomeration of technical terms as we have at present, where, for instance, apoplexy, paralysis, and paresis, etc., are thrown together, each word having a different meaning. Just think, parturient apoplexy, where paresis should be used, or whenever you hear this man had a slight stroke of apoplexy, where paralysis is in its place. Don't it make you laugh to hear such a

mixture of expressions? Or what do you think of a man using paralysis for azoturia? This really shows the man that mixes such expressions has hardly any knowledge of veterinary science, and if he has, it is very poor. Therefore, we have to make efforts to raise the standard of matriculation into the college. Only by this can we expect to promote our profession socially and intellectually, when admitting only thoroughly educated men to enter the field of veterinary practice.

The Board of Examiners will do good work if not only inquiring of the scientific equipment of applicants of veterinary science, but also in their general education.

Report of Dr. H. B. Felton, of Committee on Intelligence and Education.

In reviewing the condition of our veterinary schools during the last year we find they have been sympathetically affected by the depreciation in the price of horses and by the widespread use of the trolley and bicycle; these factors, by rendering the outlook of the veterinarian less promising, have deterred many from matriculating, and as a consequence the entering classes have been greatly reduced in size. The lengthening of the course and the increased requirements in some of our schools have also had a deterring effect, so that we see no immediate danger of the profession becoming overcrowded. We note as a distinct advance the recent introduction of ambulatory clinics in the Veterinary Department of the University of Pennsylvania. These clinics are conducted by Dr. Hoskins, who takes the members of the senior class to see patients in his regular outdoor practice, where the appliances for treatment and the surroundings are radically different from what they are in a well-equipped veterinary hospital. The experience gained is extremely valuable, being that which a young practitioner usually gains through much tribulation in his first and second years of practice.

Great opposition has been raised in New York State by the action of the State Examining Board in making the standard of entrance so high. We have been informed that no less than eight bills are before the Legislature at the present time for the purpose of having the standard lowered.

We deprecate the establishment of the Grand Rapids Veterinary College as being unnecessary and a detriment to our profession. Being a two-year school, with a term of five months each, it is not possible to turn out men properly equipped for the requirements of our profession, which are constantly becoming more exacting. Beside this, it is in too close proximity to the Toronto school, which is a two-year school of very much higher standing.

We call the attention of our Association to reports of cases from time to time in some of our agricultural and stock journals, as they tend to make our profession ridiculous. One case recently reported was that of a mule which exhibited very peculiar brain-symptoms that greatly puzzled the attending doctor (?), and upon the death of the animal an autopsy was made, and the cause of death found to be a live mouse, which had run up the nostril and penetrated into the brain! We might well ask, which head was the more empty, the mule's or the man's? In another case, that of a horse, the mysterious cause of death was found to be gall-stones pressing on one of the main arteries. We might look on this as a case of transference of the brain to gall, but not on the part of the horse.

The work of the State Livestock Sanitary Board may also be considered as coming within the limits of the field of this committee. It has to do in many ways with intelligence and education. It is generally recognized that any attempts to control diseases of man or animals are almost hopeless when there is not widespread sympathy with the work. Sanitarians always strive for popular support. Efforts to enlist the co-operation of the public are not based on narrow grounds of petty policy, but are desired because they insure the permanency and efficiency of the work. Where active

antagonism exists in relation to any sanitary measures, both the work and the agents are placed at a sad disadvantage. It is like fighting a battle in the country of the enemy. The first thing, therefore, for the State Livestock Sanitary Board to do was to enlist the support and assistance of the livestock owners. It could not do this by extremely radical measures necessitating a wide departure from established systems of management and business. Its duty was to point out the dangers that existed, the sources of disease and loss, and offer its services to the sufferers therefrom. So much misrepresentation in reference to the veterinary profession and to all veterinary measures has occurred; some sensational "yellow" agricultural papers have fostered and exaggerated these statements and impressions so much that when the State Livestock Sanitary Board was established a single false policy would have thrown the whole work into disrepute and have done incalculable harm to the subject of veterinary sanitation. It is fortunate that at this critical time the Board adopted a conservative policy. The method under which the Board operates is familiar to you. It has secured the approval and confidence of the agricultural people, and the first great step in the suppression of the infectious diseases of animals has been accomplished through education. Previous to 1896 more than \$2500 per year had never been expended by the State for the suppression of diseases of the domestic animals. During the last two years about \$90,000 has been expended without undue friction or unfavorable comment being excited from sources worth mentioning. In view of the success which has attended the efforts of the State Livestock Sanitary Board, we think it due this Association to express the most hearty commendation of their work. We extend to our sister States, which are endeavoring to have similar boards established, a word of encouragement with a hope that their efforts will soon be crowned with success.

The recent decision of United States District Judge Rodgers, at Kansas City, in which he held, in effect, that the present system of government meat-inspection was unconstitutional, has created quite a stir in legal and veterinary circles. It would appear, however, that the decision is one largely technical in character, which will not affect the practical operation of the law when applied to the inspection of meats intended for interstate traffic or export to foreign countries. We quote the opinion of Dr. Salmon, Chief of the Bureau of Animal Industry, who has direct supervision of this branch of the service, and who says: "The decision, I think, is rather technical, and Judge Rodgers is probably a close constructionist of the law. We rely on decisions of the United States Supreme Court for authority to show that the government has the right to inspect meats intended for interstate shipment. The intent of Congress when it enacted this legislation evidently was that the animal was a subject of interstate commerce from the time it was shipped from the State in which it was raised until reaching the destination for consumption. There is nothing for the department to do in the case as it now stands. If the meat is inspected for domestic consumption entirely within the limits of the State, then the United States authorities cannot insist on an inspection, but just so soon as it passes beyond the borders then inspection will be necessary, as this requisite is imposed by the requirements of the law. A large amount of our meats are now exported to Europe, and foreign countries will not accept them if not properly tagged and handled with the inspector's mark. Should the decision of Judge Rodgers be accepted literally by the proprietors of the packing-houses, and they should refuse to permit our inspectors to do their work as heretofore, we shall, when shipments reach the State boundaries, simply refuse to give a certificate of inspection.

H. B. F.

Drs. W. H. RIDGE, Chairman, H. B. FELTON, W. S. KOOKER, OTTO G. NOACK, CHARLES T. GOENTNER, Committee on Intelligence and Education.

The Committee on Sanitary Science and Police made a very commendable report, and the Chairman, Dr. J. Curtis Michener, made prophecies of the future's good work, much of which is sure to be realized:

Report of Committee on Sanitary Science and Police.

In this age of advancement, sanitary science is receiving its merited attention. We are now looking for the cause of disease, and no longer attribute it to an avenging Deity, except, when one of our own species succumbs, we usually acknowledge that it has pleased Almighty God to remove the loved one, regardless of the disease or accident that did it. There is still one very common (and in most cases senseless) cause given for attacks of sickness by the laity, and encouraged by the profession, that of taking cold; but gripe is quite fashionable, and both terms come handy when we do not know. It is encouraging that the most dangerous of the contagious and infectious diseases of both man and beast are now amenable to law or the regulations of health and livestock sanitary boards. Let us see to it that no retrograde step is taken, but press manfully onward until the profession becomes the appointed guardian, advising and protecting the people and annihilating disease germs. We are not dreaming or dealing with impracticable or visionary schemes, but are living witnesses of glorious victories being achieved. Bovine contagious pleuro-pneumonia is a thing of the past with us. Splenic-fever is being driven to narrow confines; only a few years ago it killed a thousand where it now destroys one. Glanders is growing far less prevalent as its victims fall into the hands of authority—only twenty-two cases reported within our State the past year. We used to meet twice that number in private practice. The percentage of cases responding to the tuberculin-test for our State Livestock Sanitary Board has declined from forty to thirteen, showing that progress is being made in fighting the disease. Tuberculosis is contagious; by that means it is propagated and kept among us. I discern the time when the insidious enemy will no longer be allowed to invade living bodies. Swine-plague, chicken-cholera, roup, and gapes are still allowed to kill their thousands. They can and will be stayed. Science will reveal the hidden enemies, and authority take hold and bring them to execution. It is time that we realized that sanitary science and police have a glorious destiny, and take hold with willing hands, and not be discouraged or dismayed by the opposition that ignorant conservatism is ever ready to give.

The general health of livestock in our State is good, judging from the meagre reports received. Dr. N. E. Reinhart, of Pottstown, gave an interesting report of an outbreak of spinal meningitis just too late for our fall meeting, and other cases have occurred; but, sorry to say, no new light has been shed upon this fatal disease. Dr. Francis Bridge reports much more azoturia, and many more recoveries, owing, probably, to the cases not being so acute. A decrease in tuberculosis and osteoporosis. Dr. J. B. Irons, of Erie, reports the Messrs. Eagley Brothers, of North Springfield, as having some trouble with their calves. One at the age of sixteen days showed an enlargement on side of lower jaw, remaining hard and enlarging, animal losing appetite; died when six weeks old. A piece of lung sent him looked like tuberculosis. One other showed similar symptoms, and was destroyed, and still another was reported to him. He tested the herd with tuberculin, but did not get the required reaction to condemn, and is unable to account for the similarity of the calves one after the other. We have been called in consultation in reference to some calves which have been developing a lung-trouble one after another the past two years, some dying and others making a very tedious recovery. The disease has been confined to those housed in one large box-stall, others on the farm escaping. We posted one and found the lungs hepatized in circumscribed patches, indicating the lodgment of a specific germ. A portion of diseased lung was placed in a

sterilized jar and sent to the Veterinary Department of the University of Pennsylvania.

We have noted with pleasure the satisfactory working of our State Live-stock Sanitary Board, and that its regulations are meeting with the approbation of our citizens as they become fully understood. May the good work go on supported by us all.

J. CURTIS MICHENER,
Chairman.

The local committee of arrangements, consisting of Drs. Kooker, Williams, Houldsworth, Marshall, Hart, and Gladfelter, were assiduous in their duties; and the noon-hour luncheon each day was a very enjoyable feature, much appreciated by all for its bounteousness and the opportunity it afforded for closer social relations of the members and their guests.

The final report of the Committee on Revision of the Constitution and By-laws was received and adopted as a whole, and 1000 copies ordered to be printed.

For three hours on the first day those present were favored by a number of operations by the members, with clinical lectures preceding, during, and subsequent to the operations. Dr. F. F. Hoffman, of Brookville, performed ovariectomy on a mare per vagina. Dr. Alex. Glass, of Philadelphia, ovariectomy on a bitch per linea alba of abdomen. Dr. S. J. J. Harger, of Philadelphia, performed median neurectomy and exhibited the section of limb when performed.

At 7.15 P.M. Dr. M. P. Ravenel, Bacteriologist of the State Livestock Sanitary Board, gave an unusually interesting and instructive illustrated lecture on bacteriology. The lantern-slides thrown upon a large canvas proved of the deepest interest and created the utmost eagerness among all present to know of the work and results of this new line of work by our State.

Never to be forgotten in memory or blotted from perceptive impression was the sumptuous dinner given by State Veterinarian Pearson in the University Restaurant Hall, where, around a horseshoe-shaped table, extending almost the entire length of the hall, beautifully and tastefully decorated, while the arched roof sent forth the draped colors of the State's University, gathered the largest number of veterinarians ever assembled around a banquet table at one time in our country. At the head sat the host, Dr. Leonard Pearson, faced by President Rayner, and in close touch were to be noted Drs. Ackerman, of Brooklyn, N. Y.; Lowe, of Paterson, N. J.; John Faust, of Poughkeepsie, N. Y., and around the table at divergent points the officers intertwined with the guests, numbering nearly one hundred and thirty. From oysters to wild fowl every course was enjoyed, and on the arrival of the cigars, the host, as President of the Keystone Veterinary Medical Association, called that body to order, as it was its regular monthly meeting, and Secretary Rhoads as promptly moved to adjourn, which was carried, when the host called upon Dr. W. Horace Hoskins, seated on President Rayner's left, to take charge as toast-master of the closing hours of the evening's feast. In a happy frame of mind at the honor of so unexceptionable an occasion, he could not forego the opportunity of fittingly referring to the successful work, broad interest, and fraternal spirit engendered by Pennsylvania's having so fortunately had added to her list of veterinarians our honored host, and with much feeling referred to the advances all along the line from the touch of one so peculiarly fitted for his vocation,

and of the hour of pride at home and in every sister State when the great University of Pennsylvania selected him as the Dean of her Veterinary Department.

Calling upon Dr. E. B. Ackerman, of the Brooklyn Board of Health, to respond to the importance of the work of veterinarians associated with such bodies, brought forth an appreciative response of the pleasure of being present under such pleasant circumstances, the growing character of this work in cities and towns, and its value from a public health standpoint.

Why one good strong association does not exist in New Jersey was fully explained by Dr. Wm. Herbert Lowe, of Paterson, N. J., and why every phase of sanitary and public health work is done in a divided manner, was forcibly referred to.

From that sage of the profession, whose advancing years makes more appreciative his love for his calling, came sound words of advice that were applauded to the echo and referred to by younger speakers, upon the response of Dr. John Faust, of Poughkeepsie, N. Y.

In responding for the medical profession our sister vocation, Dr. Detweiler, of Williamsport, Pa., told wittily and fittingly how veterinary sanitary measures governing the production and care of milk were controlling the diseases of children, and if they kept on many of his calling would be out of service in the summer season completely.

Dr. John W. Adams, of the Veterinary Department, took as his text the wholesome advice given by Dr. Faust, and strongly urged upon his every hearer to be ever a student, always a searcher for truths, and to complete in the succeeding years the studies that were only "how to learn" commenced in college days.

Dr. M. E. Conard, of West Grove, Pa., told of the new sphere of work for veterinarians among large milk handlers, and in fitting words paid a splendid tribute to the work of Pennsylvania's Livestock Sanitary Board and to the conservative direction given it by our honored host.

Official place in association work was the theme of an inspiring address by Secretary Rhodes, and the duties of members to officers was thoughtfully alluded to in strong words.

Canine practice in large cities proved an at-home subject to Dr. Alex. Glass, of Philadelphia, and its growth and importance were well presented. The opportunity of speaking to such a body of his colleagues seemed to fill the speaker with many happy thoughts of college days as a student, and later as an instructor, and traits of character, special abilities noted in students' careers, were happily treated upon.

Secretary Harger, of the Pennsylvania State Veterinary Examining Board, spoke of the value of constant study and application and how one was to better equip himself for specialized work.

Followed by Dr. J. C. McNeil, of the Department of Public Safety of Pittsburg, who thought this was a good time and opportunity to urge the consideration of the "Smoky City's" claims for the next annual meeting in September, and to promise every protective care to all who would come and bask in their hospitality.

Representing a family of whom three generations yet remain in practice, Dr. J. Curtis Michener, of Colmar, after a brief reference to State work, rendered an amusing recitation, which had an added interest to the younger single element around the board.

After a number of other brief responses by State representatives, the closing remarks were called for from our esteemed host, who, in speaking of the pleasure of seeing so many faces around the board, was somewhat embarrassed as to how best he could tell of the personal gratification of such a response to his invitation, and closed with a good-night wish for all.

The second day's session was started promptly at 10 A.M., though many were a little late. The attractions of the Veterinary Department and the Experimental Buildings and Laboratory of the State Livestock Sanitary Board proved very great attractions to all the visitors from out of the city. After a brief period of routine work, came the reading of the papers, and President Rayner called upon Dr. M. E. Conard, whose paper on "What Our Dairy Cattle Inherit?"¹ brought out some very salient points and wiped away many popular prejudices and unsound theories that prevail.

As several other papers on the programme were on kindred subjects, it was decided by a motion to have these read and then take up their discussion severally.

Dr. H. B. Felton, in considering the value of "Pasteurization *versus* Purity,"² presented an excellent paper bearing upon the importance and care of milk preparations, and brought out very clearly the barriers of defense from disease.

"Feeding of Animals,"³ by Dr. J. Curtis Michener, proved a very practical and pointed paper. The importance of veterinarians fitting themselves to be capable of giving advice and assistance was well told and appreciated by all who heard this paper read.

"What a Veterinarian Ought to Know about Commercial Milk,"⁴ proved to be well understood by the author, Dr. C. J. Marshall, and many valuable formulas of modified milk for young animals were presented, of much interest and importance.

Dr. M. P. Ravenel, Bacteriologist of the State Livestock Sanitary Board, followed with one of the most important papers of recent date: "Milk Supply from a Bacteriological Standpoint."⁵ Its careful preparation, the thermal death-points of the many germ forms of life injurious to health, its statistics, showing the milk consumption in several large cities, and many other points of great importance provoked an extremely important and instructive discussion, which lasted for several hours, and was participated in by Mr. G. H. Gordon, of the Walker-Gordon Laboratory; Mr. George Abbott, the largest and foremost individual milk-dealer of Philadelphia; Dr. J. Cheston Morris, proprietor of the Devon Milk Dairy, and who twenty-five years ago adopted the sealed-jar system of delivering milk, filling the same at the point of production; Mr. S. M. Brosius, of Chester County, connected with one of the large milk exchanges of Philadelphia; Dr. E. B. Ackerman, of the Brooklyn Board of Health, and by the authors of the several papers. The value of the various constituents of milk from a dietetic point of view came in for a round of discussion, and the claims for a milk rich in fats, one rich in the other solid constituents one of moderate richness as to fats, but prepared under the most rigid care as to cleanliness, were fully dilated upon, and from every speaker came words of praise and support to the veterinary profession for their activity and interest

¹ See p. 237 of this issue of the JOURNAL.

⁴ Ibid., 232.

² Ibid., 245.

⁶ Ibid., 215.

³ Ibid., 253.

in this all-important subject, so that every one present felt it was doubly good to have been there.

Secretary Rhoads could not refrain from reading a telegram from the newly elected President, Dr. George B. Jobson, who in the most earnest manner assured the members of the very high appreciation of the honor they had conferred upon him.

Secretary Rhoads, in the absence of Drs. Phillips, Phipps, Bland, and Keely, read their papers, entitled "Tetanus,"¹ "Tetanus as I Have Found it in Chester County,"² "The Value of Blistering with Mercurial Preparations in Preference to Actual Caution,"³ and "Eversion of the Uterus in Cows."⁴

These were followed by the presentation of a paper by Dr. S. J. J. Harger on "Lesions of Spavin."⁵ This paper was a very practical one, and was further elucidated by presenting several dried specimens and a number of hock-joints.

Dr. J. F. Butterfield reported "A Case of Distressed Breathing in a Cow, and its Relief by Mechanical Adjustment of a Tracheal Tube."⁶ The result obtained was very satisfactory and its application unique.

Other cases were reported by Dr. F. F. Hoffman and others, after which the Committee on Resolutions presented the following :

Report of Committee on Resolutions.

WHEREAS, The Governor of Pennsylvania, Honorable Daniel H. Hastings, has in many ways shown his appreciation of the importance of questions relating to the agricultural and health interests of the people; and

WHEREAS, This interest has been expressed by many acts of great value to the Commonwealth, and especially in connection with his organization of the State Veterinary Medical Examining Board, which has had his unvarying support; in the appointment of Dr. Benjamin Lee, a trained, efficient, and experienced sanitarian, as Health Officer at the Port of Philadelphia, and in his constant interest and assistance in the work of the State Livestock Sanitary Board; be it

Resolved, That we hereby tender Governor Hastings this testimonial of our deep appreciation and sincere respect; and be it further

Resolved, That a copy of these resolutions be presented to the Governor; also, that the resolutions be spread upon the minutes of the Pennsylvania State Veterinary Medical Association, and published in the journals of the profession.

WHEREAS, There has recently been some opposition in Philadelphia to the sale of milk in bottles, and this opposition is based on the alleged grounds that this method tends to favor the spread of certain infectious diseases among consumers of milk, and that it interferes with the proper inspection of milk by the officers of the Health Board of Philadelphia; and

WHEREAS, Although this method of distributing milk has been in use many years (in one case twenty years under the most careful observation), and there is no evidence to show that it has resulted in the transmission of disease as feared, and it must be perfectly evident to all who have any practical knowledge of the subject that it is much easier to protect milk from contamination and to keep it cold, thus checking bacterial growth, when it is in sealed bottles than when it is in large cans that are frequently opened; and

WHEREAS, We do not recognize the method of milk-inspection that is at present practised in Philadelphia, namely, a chemical determination of the

¹ See p. 266 of this issue of the JOURNAL.

⁴ Ibid., 239.

² Ibid., 256.

⁵ Ibid., 249.

³ Ibid., 265.

⁶ Ibid., 263.

fats and total solids in milk, as the one that is of the greatest importance to the public; and

WHEREAS, The present agitation, originating largely through a trade dispute among milk-dealers, has tended to unduly lessen confidence in the milk-supply of Philadelphia, with the possibility that this may react to their own disadvantage and the disadvantage of the producer; therefore, be it

Resolved, That the Pennsylvania State Veterinary Medical Association approves of all changes and advances in methods of milk-distribution that tend to bring this important article of food to the consumer with additional guarantees of purity, wholesomeness, and cleanliness; that we regard the health of the cows that produce it as of first importance; and a proper system of milk-supply includes not only this, but also clean, wholesome food and surroundings for the cows, careful milking, clean attendants, sterile vessels, provision for thorough cooling and rapid transportation to the consumer; be it further

Resolved, That we recognize no intrinsic objection to the system of selling milk in bottles; but, on the contrary, regard this system when carried out in a proper manner, including the thorough cleansing and sterilization of the bottles after use, as a distinct advance in methods of milk-distribution; be it further

Resolved, That a system of milk-inspection based upon chemical examination alone is incomplete and insufficient, because it omits the points that are of most vital interest in the protection of the public health, and we do not believe in a system of inspection that interferes with the proper development of methods of milk-supply.

WHEREAS, This Association, in convention assembled, has heard from every section of our State the warmest expressions of approval of the work of the State Livestock Sanitary Board; and

WHEREAS, This work is growing in importance and is now recognized as of the utmost value to the entire population of our Commonwealth, this recognition being largely due to the conservative methods adopted by those charged with the duties of executing the laws relating to diseases of animals and the regulations of the Board; and

WHEREAS, The results of this work in the suppression and control of communicable diseases have been so marked, and the expectations of the most sanguine have been so fully met, that the most skeptical of those who questioned the wisdom of the establishment of this work in our Commonwealth have been convinced of its value; and

WHEREAS, These results have come largely from the earnest personal support and assistance given the State Livestock Sanitary Board by the Governor, the Secretary of Agriculture and the Dairy and Food Commissioner and by our colleague, Dr. Leonard Pearson, the efforts of all of whom excite our warmest approval and commendation; be it

Resolved, That we express to this Board our most hearty indorsement of its thorough yet conservative methods, and of our gratification in the results already obtained, and our confidence that greater results will follow the enforcement of the broader and better plans that are in prospect.

WHEREAS, A bill is now pending before Congress that will, if enacted into law, seriously interfere with and in many cases utterly prevent research work in bacteriology, pathology, and physiology in the District of Columbia; and

WHEREAS, It is of the highest importance that work in these lines under the direction of the Federal Government shall not be interfered with for the reason that it not only promises valuable developments in the future, but that it has already yielded results that have been the means of saving untold millions of dollars, and has greatly advanced public sanitation and preventive medicine. We recognize the bacteriological and pathological

work of the Bureau of Animal Industry is among the most important that has been done anywhere in the world; therefore, be it

Resolved, That the Pennsylvania State Veterinary Medical Association is strongly of the opinion that Senate Bill No. 1156 is calculated to retard and injure work directed to the prevention of suffering and disease, and we request the members of Congress from Pennsylvania to vote and use their influence against it; and be it further

Resolved, That the Corresponding Secretary is hereby instructed to send a copy of these resolutions to each member of Congress from Pennsylvania.

WHEREAS, This our sixteenth annual meeting has proved to be the most successful and largest in our history; and

WHEREAS, Nothing has contributed more to the pleasure and comfort of all who were able to be present than the very attractive and commodious quarters and facilities afforded us by the University of Pennsylvania Veterinary Department; be it

Resolved, That we gratefully acknowledge our very great indebtedness to this Department for these very great privileges.

WHEREAS, On this most enjoyable occasion and annual reunion we have been honored and feasted by our esteemed colleague, Dr. Leonard Pearson; and

WHEREAS, This special pleasure long to be remembered with many happy and pleasant memories; therefore, be it

Resolved, That we acknowledge our most profound thanks to our colleague and co-laborer for this token of his personal esteem, and tender to him our sincere good wishes for his future good health, success, and prosperity.

WHEREAS, Deeply mindful of the great responsibilities of official place in such organizations as this, and remembering the labor incidental thereto; be it

Resolved, That we tender our sincere thanks and appreciation to our retiring officers, and wish for their successors an equal measure of prosperity in Association interests and advancement.

WHEREAS, The growing scope of work done by our Association is yearly measured by a more and more attractive programme afforded by our members; and

WHEREAS, We have been specially favored this year by a most excellent and varied programme; be it

Resolved, That we hereby tender our most appreciative expression of thanks to all of our members who have favored us with interesting reports and papers, and especially to our esteemed co-laborer in comparative science, Dr. M. P. Ravénel, for his interesting, instructive and entertaining lecture.

WHEREAS, The local committee of arrangements representing the veterinarians of Philadelphia, have been zealous in their efforts to provide for the comfort and welfare of all in attendance at our convention; and

WHEREAS, Their efforts have been crowned with success and contributed so much to the pleasure of this occasion; therefore, be it

Resolved, That we in the enjoyment of the same, desire to express our very great appreciation of their generosity and kindness.

WHEREAS, This Association has on past occasions found itself very greatly obligated for the kindness and courtesy of the press of Philadelphia; and

WHEREAS, On this our sixteenth annual meeting it has been so well and thoroughly reported in our daily press; be it

Resolved, That we extend to the press of Philadelphia our very great

appreciation of their uniform courtesy; their interesting reports of our sessions, and the excellent work they are doing in educating public opinion of the need and importance of better food inspection.

These were adopted by a unanimous vote.

The place of meeting for the semi-annual gathering brought out the friends of Pittsburg, Gettysburg, and several other towns, but the earnest solicitation of Dr. McNeil, of the "Smoky City," and his determination to have a grand meeting in that city, won the honor, and westward will be the word in September.

The seating of those of the newly elected officers who were present followed, with many appropriate and fitting remarks from the outgoing and incoming, after which, the hour being late, the meeting adjourned, thus closing Pennsylvania's greatest, most profitable, and pleasant gathering, all returning home feeling a renewed interest in the profession's advancement and its needed work.

U. S. V. M. A.

PRESIDENT SALMON has appointed the following as a Committee on Charter: Drs. W. Horace Hoskins, T. Bent. Cotton, and A. W. Clement.

Among those who are expected to discuss the various aspects of the meat-inspection question are Dr. Leonard Pearson, as it applies to "the Concentration of Municipal Abattoirs into Large Establishments under Municipal Control;" Dr. W. Horace Hoskins, as to the "Education of the People of Cities and Towns as to the Necessity for Municipal Meat-inspection;" Dr. R. W. Hickman, of New York City, as to "Slaughter-house Inspection;" Dr. C. W. Heitzman, of New Orleans, as to "Retail Market Inspection."

Dr. Ridge's appeal for greater interest among Pennsylvania veterinarians has been sent to five hundred members of the profession in the Keystone State, and this State will send a number of applicants for membership.

Chairman Peters and his committee are already planning for the reception of those who attend the meeting at Omaha. The ladies on the first day will be invited to attend the opening address of the President, and then in chartered cars be transported to the Exhibition Grounds under the guidance of the Nebraska ladies.

A reception to all members and visitors in the evening, with music and light refreshments by the Nebraska Association. Officers of the U. S. and State Associations will form the reception committee.

An excellent feature already under consideration is a noonday luncheon for all in attendance. This better regulates the sessions and keeps the members closer together.

A trip to Council Bluffs and a visit to the large stores and public buildings will be a second day feature for the ladies.

The annual banquet on the second evening, a theatre party or some suitable entertainment for the ladies, is under consideration.

PENNSYLVANIA JERSEY-BREEDERS' ASSOCIATION.

THE Pennsylvania Jersey Breeders' Association met in Pittsburg, March 17th. Among the sixty dairymen present were four veterinarians: Dr. George B. Jobson, of Franklin, President of the State Veterinary Medical Association; Dr. J. C. McNeil, of Pittsburg; Dr. Leonard Pearson, State Veterinarian, and Dr. N. Rechtenwald, Pittsburg. Dr. Jobson read a very

interesting paper on "Why Cows Do Not Breed." This paper was discussed by Dr. Rechtenwald, who exhibited some very useful, original instruments for dilating the cervix. Dr. Pearson lectured on the subject of tuberculosis of cattle. And that his views and work were not distasteful to the Jersey breeders is shown by the fact that he was afterward elected an honorary member of the Association.

SCHUYLKILL VALLEY VETERINARY MEDICAL ASSOCIATION.

THE regular quarterly meeting was held on Wednesday, March 16, 1898, at the Commercial Hotel, Shenandoah, Pa. The meeting was called to order by President Noack at 1 P.M. The following members responded to roll-call: McCarthy, Noack, Longacre, Potteiger, Schneider, Newhard. The minutes of the previous meeting were read and approved.

Under admission of new members, the name of Dr. Longacre, of Mantz, Pa., was presented by the Secretary, and his application handed to the Trustees for examination. After recess of a few minutes the applicant was reported favorable, and, after report, duly elected to membership. Dr. W. S. Longacre was also present and was introduced to the members.

The following interesting papers were read: "Meat- and Milk-inspection," by Dr. Noack; "Colic," by Dr. Longacre, followed by the reports of cases: "Chondroma in the Larynx of a Mule," "Fracture of the Patella of a Mule," and "Chronic Valvular Affection of the Heart of a Mule," by Dr. Newhard; "Inversion the Uterus of a Cow," and "Bursitis Intertubercularis," by Dr. Schneider. Papers for the next meeting will be read by Drs. McCarthy, Potteiger, Schneider, and Newhard.

Meeting adjourned at 4.30 P.M., and agreed to meet in Pottsville in June.

I. C. NEWHARD,
Acting Secretary.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

MEETING was called to order at 8 o'clock P.M. Mr. H. Hoopes, who was appointed as a committee to see about the certificates, made a report at the last meeting. He said that the Society bought sixty certificates for seventy-five dollars at Avil & Co.'s. Thirty were taken last year, and the remainder are to be taken this year.

It was moved and seconded that the Executive Committee be instructed to buy the other certificates of Avil & Co., and have enough stamped for the members of the Classes of 1899 and 1900.

Mr. E. Newcomer made a report, and said that he had the library magazines bound.

Mr. Thos. Sharpless, of Chester County gave a very interesting talk on the "Breeding and Care of Swine." It was a very instructive talk, and Mr. Sharpless demonstrated how well he understands this part of animal husbandry. He is one of the most extensive breeders of swine in this State; his favorites are the Chester White swine.

Mr. Walters, of Chester County, accompanied Mr. Sharpless.

Mr. S. McClure, of the Class of '98, was very active and earnest in getting up the interesting programme for the last meeting, and the Society extended him a vote of thanks.

M. JACOB,
Secretary.

PERSONALS.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, was appointed by the Governor a delegate to the Pure-food and Drug Convention in Washington on March 3d and 4th.

Dr. Alexander Glass, of Philadelphia, addressed the Students' Society of the Veterinary Department of the University of Pennsylvania in February on the "Breeds of Dogs."

Dr. Louis A. Klein, recently of Lewistown, Pa., graduate of the University of Pennsylvania, has gone to Biltmore, N. C., to care for the practice of Dr. A. S. Wheeler, who is temporarily absent to recuperate his impaired health.

Dr. J. W. Montague has removed from Roxborough, Pa., to York, Pa., succeeding to the practice of Dr. S. G. Hendron, who has entered the inspection service of the Bureau of Animal Industry.

Dr. Leonard Pearson was elected an honorary member of the Jersey Cattle-breeders' Association of Pennsylvania in March.

Dr. Alex. Glass, of the University of Pennsylvania, is now the possessor of the naphtha launch "Corona," some forty-two feet in length, and one of the fastest of her craft on the water.

Among those present at the annual meeting of Jersey Cattle-breeders' Association at Pittsburg, Pa., were noted President Jobson, of the State Veterinary Association; State Veterinarian Pearson, City Veterinarian McNeil, of Pittsburg, and Dr. N. Rectenwald.

Dr. Fred. L. Felber, of Baltimore, Md., was a visitor to the City of Brotherly Love the latter part of February.

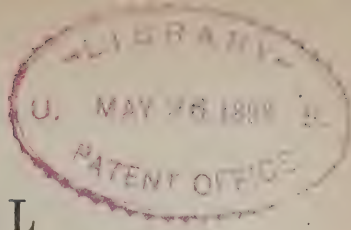
Dr. A. G. G. Richardson, graduate of the University of Pennsylvania, Veterinary Department, recently stationed at Cincinnati, has been transferred to Boston, to take up the work formerly performed by Dr. D. D. Lee, who has resigned from the service in the meat-inspection department.

Dr. R. S. Huidekoper was a visitor to Philadelphia for a short period in February.

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THE RELATION OF VETERINARIANS TO THE PUBLIC HEALTH AS MEAT- AND MILK-INSPECTORS.¹

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DISEASE frequently results from the consumption of unwholesome meat and milk. It becomes, therefore, a natural presumption that sanitary authorities should take such means as are necessary to prevent the sale of such food.

In this paper I wish to show the important relation of veterinarians to the sanitary authorities as guardians of the public health, and also to point out some of the necessary safeguards that should be placed upon the sale of animal foods.

I shall speak of milk first, as the greatest danger of the transmission of disease is from this source. Milk forms the principal diet of infants and invalids, and is generally consumed in its raw state, while meat is more or less cooked. By the inspection of milk one cannot determine the condition of the animal from which it was derived, therefore control and the inspection of cows, together with preventive restrictions against the contamination of their products, become absolutely necessary. This is also true of meat-inspection, for there are some conditions that affect the quality of the meat that cannot be detected after the animal is slaughtered.

Milk. Milk is unfit for use as food under several conditions:

a. When derived from animals in condition unfit to furnish milk, as certain physiological conditions, like advanced pregnancy or calving period.

b. When it contains some infectious matter.

¹ Read at the March meeting of the Veterinary Medical Association of New York County.

c. When adulterated. Adulteration may consist either in the addition of some substance to the milk, as water or coloring matter, the subtraction of some constituent like cream, or the addition of preservatives, such as borax, etc.

The determination of adulteration obviously lies within the domain of chemistry.

Let us turn to the various possible ways in which infection may be introduced. These ways may be summarized as follows:

1. From the animal supplying the milk.
2. From the persons who handle the milk.
3. From various substances that come in contact with or are introduced into the milk.

In how many ways the animal may be the source of infection it would require too long a time to describe; but tuberculosis and other constitutional diseases, local disease (external and internal) of the udder or teat, sufficiently suggest abundant causes of infection. These are causes which can be determined, we must admit, only by the veterinarian.

Of no less importance is the inspection and direction of the care which should be given the animals as regards their food and water and as regards the ventilation and sanitary arrangements of the stables.

Of the sources of infection from the person, such as association with an infectious disease, like diphtheria and scarlet fever, I will not speak more; but I would call to your attention the necessity of care in the entire milking process, the abundant opportunity for infection occurring then, and point out that so far as the process is one involving the handling of animals and their proper treatment, it is one which should also be directed by competent, that is, by veterinary advice.

Aside from the animal supplying, and the person handling the milk, great danger of infection arises from exposure, particularly while milking. Dust from hay, etc., manure, and dirt thrown by the tail and hoofs of cows while fighting flies and mosquitoes, and many other conditions of the dairy go to make up the principal sources of milk contamination. This makes the maintenance of a separate milking-room indispensable.

Meat. The conditions requiring the exclusion of meat from market are numerous. Some of the most important are tuberculosis, meat infested with trichinæ and other parasites, hydatids, hog-cholera, etc. Too often inspections have been made by persons who have not been trained to observe and exclude more than the

most obvious diseased conditions, and whose only ground for fitness seems to have been that they had been trained as butchers.

That such inspection belongs to veterinary medicine I think no one will dispute, and it is of such magnitude and importance as to make necessary for its proper performance in large cities the establishment of a separate division in the Health Department, to be under the supervision of a competent and experienced veterinarian.

The United States Department of Agriculture some years ago established a Bureau of Animal Industry, virtually a veterinary bureau ; the chiefs and inspectors are required by law to be graduated veterinarians. Their most important duty is the inspection of all meat to be used for export. The law under which they act directs that meat for interstate trade shall also be inspected, but for want of a sufficiently large appropriation this is only done in some of the largest abattoirs.

The carcasses, when healthy, are stamped or tagged, and those unfit for food are condemned. To-day nearly all of our Western beef bears the mark of a government inspector, and naturally demands the highest price.

Local Inspection. At our large city abattoirs meat-inspection is in force, both governmental and local ; but it is from the suburban or country slaughter-houses we must look for the most danger. At such places there is no inspection, and the result is that a surprisingly large amount of diseased meat is shipped to our city, and purchased and consumed by the poorer class of people, who are compelled to buy cheap meat or go without. In this manner sickness and the death-rate are materially increased.

To give you an idea of some of the common practices I will cite the following : A farmer has one or a number of sick cows that he fears may die ; he therefore slaughters them and ships the meat to a New York commission merchant, who sells it for his account, or he may sell or trade the cattle to a drover, who follows the same course.

Under the present conditions New York offers an excellent market for the sale of such meat. No matter how perfect or rigid an inspection is carried on in our city, we can never guarantee the inhabitants pure and wholesome meat until the sanitary authorities exclude uninspected meat.

To better appreciate the relation and the duties of the veterinarian to the public health, I have prepared the following summary :

Milk Inspection. This should include :

1. The testing with tuberculin of all cows supplying milk to the city. This includes tagging for identification.

2. The inspection of cows for other diseases or conditions that might render the milk unfit for use.

3. The examination of water used both for drinking and for cleansing utensils.

4. The inspection of food.

5. The inspection of stables. This includes arrangement of stalls, air-space, ventilation, drainage, cleanliness, etc.

6. The care of animals. This includes the grooming, exercising, care of hoofs, etc.

7. The care of utensils used in milking. These should either be washed in boiling water containing soda or potash, or, better still, sterilized.

8. Inspection of dairy employés ; particular attention should be paid to the cleanliness of the hands and clothes of attendants, and not under any circumstance should they be employed if they have been in contact with, or themselves have, any infectious or contagious disease.

9. The care and handling of milk. Milk should not be exposed, and while cooling should be covered with a layer of cotton between two pieces of wire gauze ; this will allow evaporation, and prevent infection. All milk-bottles should be sterilized, and should be filled and sealed under antiseptic precautions.

Inspection of animals within the city limits. This includes :

a. The physical examination of all animals for contagious and infectious diseases, many of which may be transmitted to human beings. The most dangerous of these are the following :

In cattle : Tuberculosis.

In horses and mules : Glanders and farcy.

In swine : Cholera and trichinosis.

In sheep : Anthrax.

In dogs : Hydrophobia.

b. The testing of cattle with tuberculin for the detection of tuberculosis. This includes the tagging for identification.

c. The testing of horses and mules with mallein for the detection of glanders and farcy.

d. The examination of meat-producing animals at slaughter-houses before they are killed. This is important, because there are some conditions, as fever, fatigue, exhaustion, starvation, and excitement, affecting the quality of the meat, that cannot be detected after the animal has been slaughtered.

e. The inspection of animals entering the city stock-yards, freight and express depots, boat-landings, and slaughter-houses.

f. The transportation of animals. This includes driving or carting animals through the city, disinfection of trucks, etc.

Inspection of Meat. This includes the inspection of the meat of animals killed :

a. Outside of the city limits.

b. At slaughter-houses.

c. In butcher shops.

All animals and carcasses inspected should be stamped or tagged. Meat unfit for food should be destroyed.

No meat should be allowed to enter the city unless it bears the stamp or tag of a government inspector, or a certificate from a reputable veterinarian stating, under oath, that he inspected the animals and that he found no evidence of disease before or after death.

The shipper must notify the Health Department, stating when and how shipped, so that the meat can be again inspected and tagged or stamped at the terminal, express, or freight office before being put on the market.

It would then be unlawful for any butcher to sell meat that does not bear the stamp of a meat-inspector.

Supervision of slaughtering and handling the dressed meat.

a. To see that this is carried out in a cleanly manner and that the meat is not contaminated by carelessness and filthy surroundings.

Veterinary supervision of animals owned by the health department.

a. Working horses (inspectors, ambulances, disinfection, etc).

b. Examination, care, and autopsy of calves and heifers used in the production of vaccine virus.

c. Veterinary examination, care, and autopsy of animals used for the production of antitoxic serums. This includes examination and purchase of horses, injecting toxins, surgical and medical treatment after injecting, and the bleeding of the same.

Inspection and autopsy of dead animals.

Disposition of carcasses of animals dying from contagious diseases.

a. Inspection of dead animals at dock to determine prevalence and location of disease.

b. Inspection of dead animals in street.

c. Inspection of hides.

Disinfection of stables.

DISCUSSION.

Dr. Austin Peters: It gives me pleasure this evening to listen to Dr. Gill's paper and to note what he says about meat- and milk-inspection. I think his ideas are all right, but at the same time I think that there would be a great deal of difficulty in carrying them all out.

Five years ago last fall the New York State Board of Health became very much interested in the inspection of cows' milk and the possible danger to human beings from tuberculosis. In 1892 they had a bill passed appropriating \$5000 to inspect dairy cattle in New York State. When infected cattle were destroyed the owner could claim the cost from the State. I was appointed chief inspector, and with others inspected the animals of Westchester and Orange Counties, about 10,000 in each county, and nearly all in Long Island City; we gave each cow a physical examination, and the result was that the claims to be paid amounted to \$20,000. This scared them so that they appointed a commission, and they have not done very much since in that line.

In Massachusetts, by law, an inspector of animals must be appointed in every city and town in the State, to inspect the animals in the slaughter-houses, also to go around among the stables and examine the cattle. There is no State Veterinarian, and the work of the dairy inspection is in the hands of the State Board of Cattle Commissioners. They inspect once a year, and the result has been that the last two years the Cattle Commission had \$300,000 to spend, and last year \$250,000, and this year there is a very strong feeling of economy in the State, and they are going to try to have only \$150,000. We killed about 5400 head of cattle last year under the tuberculin-test; we had about 10,000 returned as suspicious. Of these there were about 4000 found to be healthy, and about 5400 were quarantined. This saved \$185,000. If an animal is quarantined by an inspector under suspicion, an agent of the Board is sent to examine the animal. As a rule, the agent tests with tuberculin, and if condemned the owner is allowed an amount not to exceed \$60.

The law says that any animal that is diseased is unfit for human food, and it says that tuberculosis is a disease that is dangerous to the human family, but it seems to me tuberculin is an extravagant way to work on. There are a lot infected in the mediastinal gland which are killed and used for fertilizer.

The law is now changed, so that we do not pay over \$30; but it is uncertain whether this limit as to value will continue, as there are a great many cases where people are keeping cows to put them in quarantine so as to sell them to the State and get the price allowed. I think that where a cow is condemned there should be a system whereby the carcass could be used as a fertilizer and the money received for it be returned to the owner.

I think that in all our States the rules for meat-inspection should be made to conform with the United States Bureau of Animal Industry. They have meat-inspection under certain rules throughout the country. If the animal has a slight localized lesion it is passed; if it is generalized the carcass is thrown away.

I think that as far as public health goes we have to look at it from two standpoints: First, the possible danger from cows that are tuberculous; the

other, that it is a contagious disease. I think that if we killed badly diseased animals on physical examination, those which have tuberculous udders, for instance, it would be cheaper. A cow may have actinomycosis or inflammation of the udder, and she will produce germs which are parasitic in character, which, of course, are injurious to the milk. It is very necessary that the conditions under which milk is produced should be known. For that reason I think that a fixed method of dairy inspection is very important.

For the past year Dr. Theobald Smith has been doing a good deal of work in this line. He says there is a difference between bovine tuberculosis and human. It is found that the bacillus from human is more slender than that of cattle, which is thick and harder to cultivate. When human bacillus is injected between the ribs it produces a slight localized lesion or small abscess, whereas the bovine germ injected in the same way has produced in two weeks or a few months generalized tuberculosis. Some counteract quicker than others.

As a great deal of milk comes from outside of the State it is doubtful what the result of inspection would be; the only way would be to license each dairyman, who would have to have a certain standard to go by. In dealing with contagious diseases and using the tuberculin-test, we have to have the co-operation of the owner, for if he is careless about disinfection we cannot depend on him very much.

Dr. Pearson: This subject was under discussion at the U. S. V. M. A. meeting at Des Moines three years ago, and at that time there were some who advocated it; but one of the speakers doubted the efficiency of these sanitary measures and of the power of veterinarians to control them.

In approaching this subject we must not do it as the man who was in danger, and compelled to pray, and as he doubted the existence of a God, he said: "Oh! God, if there be one, in heaven, if there is one, protect me, if you have power." We do not want to go at it in that way. We want to know, if there are dangers, how they can be avoided. Of course, there are some who will say that veterinarians recommend these measures because they will be employed, because they will receive money, and, of course, it may be that motives of that kind will be found; but there are other reasons, and because they are the best experts on these questions.

Meat-inspection is nothing more nor less than applied comparative pathology, so that if meat-inspection is to be efficient it must be carried out by those who have had some training in that line; this also applies to milk-inspection. Is there any danger from the ingestion of milk from a tuberculous cow? Dr. Peters admits that there is danger from the consumption of milk from a tuberculous cow, and I have no doubt that Dr. Peters has seen a great many that prove to be excessively diseased who seemed to be healthy during life. It is an unquestionable truth that cows that appear to be well can produce bad milk. Cows' milk has been found that killed 13 per cent. of guinea-pigs, showing that the active tubercle bacilli were there. Of course, whether they are numerous enough to infect a person, no one can tell, for no one will use milk of that character.

It is said, by those who are informed on this subject, that there is no case on record where it has been shown conclusively that tuberculosis has been conveyed by the use of milk. That is unquestionably true. There is no case on record where we are able to say positively, but at the same time we know

that the germ of tuberculosis in the cow is the same as tuberculosis in man; we know that cows furnish milk containing large numbers of tubercle bacilli, and that in many cases people have tuberculosis in the intestinal tract. When a child from a healthy family contracts tuberculosis and dies, there is often a great deal of circumstantial evidence to uphold our theory, and men have been hung on circumstantial evidence no stronger than what we have.

The experimental work that has been carried on in Massachusetts has gone to show that there is a slight physical difference between the tubercle bacilli of cattle and man. They also show that when these two are injected in cows the bovine is more virulent than the human, and that the germs from the bovine will kill a man quicker than those from human. We do know that where a germ has been grown in a number of generations, it acquires a higher degree of virulence than it has after it has been carried through a few generations. Germs from the bovine source injected into horses will kill quicker than from the human, and we all know that horses are not susceptible to tuberculosis.

We will never know that human beings contract tuberculosis from drinking milk until we are able to take a man and lock him up in a glass cage, using strict antiseptic precautions, and feed him on suspected milk. At the same time we physicians and everybody believe that the dust in rooms that have been occupied by consumptives, and the dust on the street where they have expectorated, are means of spreading the disease, and the Board of Health believe that it is dangerous for consumptives to expectorate on the floors of public conveyances. We have not found a single case where an individual has contracted tuberculosis in that way. So long as we recognize these dangers it is our duty to avoid them, and so long as persons die from tuberculosis, it is the veterinarian's and human physician's duty to remove the causes, which means the prohibition of the sale of meat and milk which is not healthy.

You may think I am assuming too much when I say that you will have meat- and milk-inspection, and you may think so especially because I am a member of Tammany Hall; but I repeat that you will have meat- and milk-inspection in this city carried out by veterinarians, and I say so because we can see this system now growing all over the world. It is a reform that is sure to come, and notwithstanding your experience here in New York, it is stated frequently that reforms never go backward, and this is true of sanitary reforms to a greater extent than it is to political.

The value of meat-inspection has been tested in the most advanced cities of Europe, and it is growing each year more and more. This is not only true of Europe, but it is also true of the United States, for ten years ago there was not a veterinarian employed in this capacity, whereas now there are approximately about one hundred and fifty veterinarians in the Federal Government. There are two in Pennsylvania, another will soon be appointed, and these three will be assisted by two or three laymen, who will no doubt be replaced by veterinarians.

I have no doubt that it will reach New York City, and that when it comes it will find the surroundings congenial, and before long New York will have a thorough meat-inspection carried out by the only men who can do work of this kind—carried out by veterinarians.

Prof. Hickman: I have greatly enjoyed and been very much interested in

the paper read by Dr. Gill, the essayist of the evening, and likewise in listening to the remarks of the gentlemen who have followed him.

I have a keen appreciation of the importance of the relation of veterinarians to the public health as inspectors of meat and milk, and while I shall not occupy any more time in speaking of the diseases and conditions which render these animal food-products unfit for human food, I shall direct what I have to say more particularly to the subject, and to the two means by which the qualifications of meat and milk inspectors are acquired. The two means alluded to will be manifest as I proceed.

All things being equal, I think it will be admitted that the knowledge resulting from experience or contact with an object, especially if that object be a living creature, will be of a more practically valuable sort than if attained by promiscuous, general, or special reading. If this proposition is patent, so, likewise, must be the fact that the adaptability and the capabilities of the educated and trained veterinarian render his relations to the public health, as an inspector of meat and milk—the chief articles of food of well-fed humanity—of infinitely closer and greater importance than is possible to members of our sister profession or any other class of individuals; for the veterinarian, by contact and training, is alone fitted as health-mediator and judge of animal products for food-consumption. (Not by any means, however, for the reason advanced by the man who knew all about swine, namely, because he was “raised among them,” and yet, I would not for a moment depreciate the advantages of association.)

Having already strayed “from the sublime to the ridiculous,” let us allow our thoughts for a moment to dwell upon the æsthetic, and bring within our mental vision, using as an illustration, the golden-rod in the early autumn. Thus, the mental attainment in medical science that is acquired through studious application to books may be compared to the bud; the after-development to the bloom—its fulness, of course, depending upon soil, environment, and the natural vigor of the plant, or, if you please, the talent and persistence of the individual. The golden-rod, as an illustration in point, occurred to my mind because of its being the national flower, and at the same time suggestive in name of the golden rule; for, next in value to the mental attainment of an inspector of animal food-products, would closely follow his practical experience—the result of contact, handling, and association. In fact, I believe it impossible to separate or differentiate the value of these two sources of education and development, since they must be so intimately related that either one without the other would fail to qualify an individual for the performance of the exceedingly important duties of inspector of meat and milk. The family physician gains his most valuable information through hospital and other practice upon subjects of his own race. By these means he learns to apply his knowledge, which knowledge, by association, experience and contact, becomes enhanced; but the very means of his development and the nature of his professional duties debar him, disqualify him, for lines of practical work which must of necessity fit the veterinary physician and surgeon for the functions of his office and the fulfilment of the obligations he has assumed in the interests of science and humanity.

Therefore, let the family physician, the agriculturist, the slaughterer and packer, the milk-producer and vender, attend to his respective duties as such, leaving the determination of the fitness of animals and their products for

food consumption to the veterinarian, who devotes his life, his abilities, and his energies to the acquirement of such wisdom and the execution of such obligations as devolve upon him, which, because of evident circumstances and conditions, make him a true savant in questions of hygiene as pertaining to domesticated animals, and their products, and their relative values, uses and fitness for human food.

It is true that medical science (I use the term advisedly, for the greater number of its varied branches are true sciences) has made its advancement chiefly through experimentation upon the lower animals. It is probably equally true that both branches are advancing in equal ratio. The results of such experimentation, however, as applied to the veterinary branch of medicine, lead to knowledge that is more or less positive, while, as applied to the other branch, and the *genus homo*, it can be but relative.

I think it has been clearly shown that the work of meat- and milk-inspection belongs exclusively to the veterinarian, and likewise the importance of having qualified representative members of the profession in every State or municipal Board of Health. I am sorry that this claim is not more generally recognized, and that it is possible and pertinent for such editorial squibs to appear as I noticed in the February 5th *Rural New Yorker*—i. e., "The New York State Board of Health has been expending a little money in testing the dairy herds at State institutions. This serves to protect the inmates from diseased milk, and sets a good example. . . . While we are thinking about the State Board of Health, it occurs to us that a veterinarian or two would not be out of place upon it. Very likely it may have to pass upon the fitness of men for herd-testing, and physicians do not get such training in comparative medicine as would be useful in that event."

I believe it just, proper, and essential that the veterinary profession have representation in every scientific body, State, municipal, corporate, or otherwise, where the subject of the *relation* of the diseases of man and animals, or the fitness of animal products for human food is investigated and passed upon; and I believe that such bodies or associations of men will make more rapid advancement by such accessions to their organizations; and, finally, I am of the opinion that none but veterinarians should act in the capacity of inspectors of animals and their products, such as meat and milk.

Dr. Lowe: I have been very much interested in Dr. Gill's paper and so far as the other addresses went.

This subject of meat- and milk-inspection is certainly a very important one, and veterinarians have to go into it carefully, slowly, and, of course, thoroughly. People will have to be educated up to what veterinary science will do for them.

In speaking of meat- and milk-inspection most of the speakers dwelt on tuberculosis; but I think our laws in regard to the inspection of diseases of animals should be general, and applied to all the diseases that are communicable from the animal to mankind, and not to tuberculosis alone; but no doubt tuberculosis is the most important that we have at the present time. I think we all recollect when pleuro-pneumonia was so prevalent, and all investigations were directed in that direction.

Any of us that may have any influence in shaping what is to be done in that line know that we must have legislation, not directed toward tuberculosis but all animal diseases.

I think no great results will be reached by destroying infected animals

until we pay more attention to breeding and to sanitary conditions. Carelessness in this line often produces the same disease or some other diseases, and we all know that the sounder the animal the better able it is to resist infection. It is well known, I think, that every man who drinks tuberculous milk and eats tuberculous meat does not contract tuberculosis. There is a great deal to accomplish in the line of breeding which largely depends on more careful selection of the stock, for sometimes one infected bull will cause a great deal of harm.

In New Jersey we have labored under considerable disadvantage by reason of not having legislation. The State Board of Health has control over all diseases of animals; then we have the Dairy Commission, and we have a Tuberculosis Commission vested with full power to deal with tuberculosis; therefore, if a man has a diseased animal he has to spend a good deal of time in finding out which one he has to consult.

A practical and experienced veterinarian should examine animals first, then the power of the other commissions could be applied. Not very long ago we had a typhoid-fever epidemic in Paterson, N. J., and there were a great many deaths. The investigation traced it to a certain dairy in Sussex County, where it was found that they had what was called a case of walking typhoid fever. This milk was shipped to different parts of the State, and by lack of facilities could not be traced.

Dr. W. Horace Hoskins: The subject which is open for consideration, and which has been so well presented by Dr. Gill, is one of great importance. This subject is one that is pressing its importance upon the people of this country, and it is well that we who are so directly interested in this work should be foremost in consideration of all the measures that are destined to lead us out of the present unsatisfactory conditions, and especially the very important ones of meat and milk, in which we are very much interested, and which by our education and training are so well fitted to solve the questions relative thereto in a way that shall be satisfactory in the largest measure to all concerned.

The question of meat- and milk-inspection is probably the most important one that presents itself for consideration to the United States and the whole world, and it has fallen to you to bring this matter to the more direct attention of the authorities of your State and especially of your city. In this, because of your ability and of your training, and as your duty as citizens as well as professional men, you should be interested. I was surprised in looking over some of the recent statistics to find that New York State, with her great animal-industry interests, that the subject of milk- and meat-question, which constitutes one of the leading industries, that the authorities have not been able to find profitable employment of more money to help solve some of these questions, and do her part of the work that is going to establish all over our country a thorough food-inspection. We should not confine it to meat which goes abroad, for our own interest is greater than any foreign, and of far more importance than the better physical development of nations three thousand miles away. Your own statistics show that in seventeen years there has been less than twenty thousand dollars spent in the employment of veterinary services for the inspection of diseases incidental to your live-stock interests in the State of New York; surely a paltry sum. She must look to the veterinary profession to lead in this work, and if New York State has found it necessary to spend so small an

amount of money, it is that she has not realized how great is her responsibility in guarding human life. So far as this subject relates to our profession, it is our duty to educate public opinion and arouse public sentiment. The avenues of education are multiple in number. However, every citizen appreciates more or less the dangers there are in the supply of milk, not alone from the animals, but from conditions surrounding its production and that are incidental to its proper delivery to the consumer.

It is equally well known how susceptible milk is to the presence of other products, and, therefore, of the special care that must be taken to prevent it from being contaminated.

We as veterinarians know particularly of the very many dangers there are: We know the different kinds of milk; we know of the results of bad sanitary conditions of stables; we know the care needed for animals; we know all the dangers of food, and how important they are for a good milk-supply. We cannot hope to obtain an ideal system at first, but that is something which is sure to come in time. I think it is a sad state of affairs if a city cannot regulate its own food-products and control the introduction of only good and wholesome foods for her people.

It is certain that the establishment of a system of meat- and milk-inspection is needed, and that we must lead in trying to formulate regulations for this work. In Massachusetts and Pennsylvania this work has been going on, not as rapidly as we would like, but the education of the people is being advanced daily.

It is the purpose of this meeting to bring this very important subject more forcefully to the attention of the people of your city and State, and I am sure that much good will flow from this movement.

POWDERED SOAP AS A CAUSE OF DEATH AMONG SWILL-FED HOGS.¹

BY VERANUS A. MOORE, B.S., M.D.,
NEW YORK STATE VETERINARY COLLEGE, ITHACA, N. Y.

It is a common experience of those who are engaged in the investigation of animal diseases to occasionally find outbreaks of a peculiar nature among swill-fed hogs. By these are meant herds of greater or less size, usually kept near or within the outskirts of our villages or small cities, and which are fed upon the kitchen refuse, often including the dishwater, collected from hotels, boarding-houses, and private dwellings. The cause of death in these outbreaks is, in this State, at least, usually attributed to hog-cholera. The basis for this popular diagnosis seems to be in the similarity of certain of the symptoms manifested by these animals to those of hog-cholera, such, for example, as diarrhoea and partial paralysis, and the fact that a majority of those attacked die. The

¹ Bulletin Cornell University Agricultural Experiment Station.

course of the disease is irregular, deaths occurring in from a few hours to several days after the symptoms appear.

During the past year I have had occasion to make investigations into the nature of several of these outbreaks of a supposedly infectious disease. In a few of these epizootics hog-cholera or swine-plague was easily demonstrated. In certain others, however, these or other infectious diseases could not be found. The animals were usually fed the kitchen slops collected from hotels and boarding-houses. The tissue changes in the animals examined were typical of no known disease, and notwithstanding the bacteriological examinations which were made, together with animal inoculations with pieces of the diseased organs, the cause of death remained undetermined. The post-mortem examinations showed in nearly all of these animals enlarged and dark-colored lymphatic glands, especially those of the mesentery. The bloodvessels of the mesentery were very much distended with blood. The liver and kidneys were usually not affected, but occasionally these organs were involved. Where there had been marked nervous symptoms the brain was much congested. Occasionally the lungs contained areas of collapse. As a rule, the intestines were pale, and the mucous membrane seemed to be abnormally shiny.

The negative outcome of these investigations suggested that possibly our methods had been faulty or that some unknown conditions existed which had obscured the cause of death, and that, after all, the popular diagnosis of an infectious disease was right. Against this theory was the fact that the disease did not spread from the affected herds to others, although, as a rule, precautions were not taken to prevent its dissemination, and in some instances the neighboring herds were most favorably situated for contracting the disease if it had been contagious. In certain of the outbreaks the exceedingly filthy condition in which the pens and yards were kept suggested, in the absence of a knowledge of definite specific agents, that the animals had died as a result of their unsanitary surroundings and unwholesome food, a hypothesis which in some instances is still entertained as being highly probable. However, we were still confronted with the problem that in many outbreaks neither a specific infectious disease could be found nor the exciting cause of death pointed out.

Although it was apparent that the cause of the deaths was to be found in the food, the feeders of this kind of swill failed to see why they should discontinue its use. Naturally they felt that if we could not find or demonstrate the presence of the destructive

agent in the swill the cause of death must be something else, probably hog-cholera, for thousands of hogs are annually raised upon this kind of food. Further, the plea that such garbage was not a suitable or even wholesome food for their animals availed nothing, for the reply was that usually their pigs thrived upon it.

Early in the summer, in conversation on this subject with Mr. W. F. Davey, an enterprising farmer living near Brewerton, N. Y., he related the circumstances concerning an outbreak of this kind in which he had traced the cause of the trouble to the soap used in washing the dishes. The swill, including the dishwater, was collected from three small hotels and fed to a herd of swine. In a short time the animals began to sicken, and many of them died. Upon inquiry it was found that in the hotels large quantities of powdered soap were used in washing the dishes. This was stopped, and no more animals died. Later in the season Dr. J. A. McCrank, of Plattsburg, told me of an outbreak of an apparently infectious disease among swine which had come under his observation, and in which he could not make a positive diagnosis. In the investigation of its cause he found that the hogs were being fed the swill, including the dishwater, from a hotel. Upon inquiry he found that powdered soap was being used in large quantities. The swill from this place was stopped, and the disease disappeared.

In following up the line of inquiry which these experiences suggested, it was found that there is among the more enterprising farmers a quite general belief that these soaps, when given in considerable quantities, are injurious and even fatal to hogs. The consensus of opinion on this subject, together with the more definite observations of Mr. Davey and Dr. McCrank, appeared to be so conclusive that it seemed important to determine by careful experiment to what extent, if at all, powdered soaps can be considered as the cause of death in this class of outbreaks. To this end the experiment about to be described was carried out. It shows that when certain of the powdered soaps sold in the market are present in the food in relatively large quantities a considerable percentage of the animals will sicken and many of them will die.

When, however, the soaps are added to the food in small quantities (a dessertspoonful in the food for three pigs, twice daily) no bad effects seem to follow. The cause of death when it does occur is probably due, as shown by the chemical analyses, to the free alkali, sodium carbonate, or washing-soda, which they contain.

Experiment in Feeding Powdered Soaps to Pigs.

In the experiment three of the commonly-used powdered soaps were selected. They are here designated as soaps A, B, and C. Nine pigs, weighing about twenty pounds each, were taken. They were given their regular food, grain mixed in water, and some separator-milk. To this was added a definite quantity of the soaps, which were dissolved and thoroughly mixed in the food twice daily.

SOAP A.—*July 10th.* Pigs Nos. 1, 2, and 3 were placed in pen No. 1. They were given, night and morning, regular rations as previously described, to which were added 2 ounces of soap A.

14th. Pigs well. Quantity of soap given increased to 4 ounces.

18th. Pig No. 1 has profuse diarrhœa, others well.

20th. Pig No. 1 has diarrhœa; at times it runs about the pen in apparently a dazed condition.

24th. Pigs Nos. 1 and 2 have bad diarrhœa. Quantity of soap given reduced to 1 ounce.

August 1st. Pigs appear to be well.

7th. Quantity of soap increased to 5 ounces.

8th. Pigs sick; all have diarrhœa; do not eat; have some difficulty in walking.

9th. Pigs appear to be no better.

11th. Pigs still sick; have eaten very little. Soap stopped.

12th. Pigs slightly better.

15th. The condition of the pigs is much improved.

18th. Animals apparently well.

The feeding of this soap was repeated on these animals some weeks later with a similar result.

SOAP B.—*July 10th.* Pigs Nos. 4, 5, and 6 were placed in pen No. 2. They were fed the regular rations to which were added, morning and evening, 2 ounces of soap B.

14th. Pig No. 4 has a bad diarrhœa; others well. Quantity of soap given increased to 4 ounces.

15th. All three have a diarrhœa.

19th. Pig No. 4 found dead. No. 5 very sick, unable to stand, refuses food.

20th. Pig No. 5 cannot stand, limbs constantly jerking; there seems to be paralysis; it dies late in the afternoon. Pig No. 6 has suffered from diarrhœa, but otherwise seems to be well, although it eats very little. Quantity of soap reduced to $\frac{1}{2}$ ounce.

22d. Pig No. 6 better.

August 1st. Pig No. 6 much improved. Soap discontinued.

SOAP C.—*July 10th.* Pigs Nos. 7, 8, and 9 were placed in pen No. 3. They were fed the same as the others. Night and morning, 2 ounces of soap C were mixed with their food.

13th. All the pigs have diarrhœa; eat very little.

14th. Quantity of soap reduced to 1 ounce.

16th. Pigs very sick; eat very little; head jerks constantly; limbs tremble; temperature 103.5°, 104°, 103 8° F.

18th. Pig No. 7 dies suddenly to-day; others still sick. Pig No. 8 has much difficulty in standing; lies with feet extended, legs and head are constantly jerking. No. 9 has diarrhœa, eats little, but otherwise appears to be well.

19th. Pig No. 8 found dead this morning. No. 9 seems to be better.

20th. Pig No. 9 eats heartily; appears to be quite well.

Three other pigs, Nos. 10, 11, and 12 from the same lot, were placed in pen No. 3 with pig No. 9. They were given $\frac{1}{2}$ ounce of soap C, thoroughly mixed with their food, twice daily.

25th. Pigs apparently well.

August 1st. Pigs apparently well.

17th. Pigs apparently well. The quantity of soap increased to 4 ounces at each feeding.

18th. Pig No. 10 sick.

20th. Pigs all sick, refuse food. They ate sparingly of some corn given them.

21st. No appreciable change.

23d. Pig No. 10 very sick. The muscles of the head and legs constantly jerking. Eats very little of the regular food, but partakes sparingly of corn.

25th. No change.

27th. Pigs very sick; have refused food containing soap for two days. Eat sparingly of corn. Soap discontinued.

The pigs which recovered from the immediate effect of the soap did not become thrifty for some weeks. It was late in September before they began to show signs of growth.

Postmortem Examination.

Pig No. 4. The skin over the ventral part of the body and between the thighs of a pinkish color; kidneys very pale; spleen normal. The bloodvessels of the mesentery much congested, the mesenteric glands enlarged and œdematous, many of them con-

gested. Areas of the mucous membrane of the intestines, especially the ileum, were of a dark-reddish color. The lungs and heart were not changed. The brain was deeply congested.

Pig No. 5. This pig showed lesions very similar to those exhibited by No. 4. The essential difference was an increase in the intestinal congestion.

Pig No. 7. The skin between the thighs and about the nose was of a bright pinkish color. The liver was small, exceedingly firm and friable. The mesenteric bloodvessels were injected, and the mesenteric glands were enlarged and œdematous, and many of them deeply reddened; a few were hemorrhagic. Spleen normal. The cortex of the kidneys very pale, but the papillæ were abnormally dark. The mucous membrane of the intestines was congested in a few irregular areas, and the mucosa of the stomach covered with a thick layer of mucus. The heart and lungs were normal in appearance. The brain was very much congested.

Pig No. 8. The tissue changes in this animal were similar to those found in pig No. 7, with the exception that the kidneys were much congested.

A careful bacteriological examination was made of the liver, spleen, kidneys, and blood of each animal that died. In nearly every instance (all but two) the tubes of culture-media (agar and bouillon) inoculated remained clear. The two exceptions contained saprophytic bacteria and were probably contaminations from the air. This examination shows that the alkali had not favored the migration of the bacteria from the intestines to the various organs of the body.

In order to check the result, several pigs from the same litters as those used in the experiment were kept, in adjacent pens, and given the same kind of food. They all remained well. This fact, in addition to the negative results from the bacteriological examination, and the peculiar nature of the lesions, are sufficient evidence that the sickness and the fatalities among the pigs in the experiment were due to the soaps administered.

It is important to note that the lesions found in the pigs which died in the experiment were similar to those found in the pigs in certain of the outbreaks mentioned among swill-fed hogs. Considering the facts as they appear, it seems highly probable that the cause of death of the animals in certain of the outbreaks mentioned was the presence of the free alkali in the swill. This hypothesis is supported by the experiences of Mr. Davey and Dr. McCrank.

Chemical Analysis of the Soap-powders Used.

In order to ascertain the chemical nature of these soaps they were submitted to Mr. Geo. W. Cavanaugh, assistant-chemist of the Agricultural Experiment Station, for analysis. The following report was received:

"The soap-powders used in the above experiment are mixtures of ordinary hard soap, that has been powdered or in some way reduced to a fine condition, and sodium carbonate. Sodium carbonate is known in commerce as sal soda, washing-soda, or soda. In water it forms a caustic solution which is the lye used in making the old-fashioned hard soaps. Analysis: Soap A, 49.60 per cent.; soap B, 55.42 per cent.; soap C, 55.54 per cent."

A careful inquiry has been made to ascertain the quantity of these soaps commonly used in washing dishes. This has revealed the fact that while the amount used by different individuals varies, the quantity is large, usually far in excess of the amount prescribed by the manufacturers. Thus I have been told, by thoroughly reliable people, of dishwashers who would use one-third of a box in cleaning the dishes after a single meal. While this is extreme, it is said not to infrequently happen, and it is easy to understand that the swill from these kitchens would contain far more of the alkali than we found necessary to produce fatal results. Should such excess in the use of these cleaning agents be indulged in for several days in succession, we have, in the light of the foregoing experiment, a cause for many fatalities among the hogs fed upon the dishwater.

In view of this danger it seems better to abandon altogether the habit of giving dishwater to hogs. Although the feeding of garbage is generally condemned, the scraps of vegetables and table-refuse could, perhaps, if properly collected be used with safety. But certainly pure water is a much more wholesome drink, even for swine, than dirty dishwater. When the subject of "swill feeding" as a business is studied, and the conditions as they exist are understood, the wonder is not that some of the hogs die, but rather that any of them live.

It is not presumed that the poisoning by carbonate of sodium is the only cause of death among swill-fed hogs. Other destructive agencies are liable to be found in the decomposing garbage. The results of the investigation which the necessity of good farm-hygiene demands will very likely disclose the specific nature of

many of them. Another fact worthy of consideration is that the investigation of the last year shows that nearly all of the outbreaks of hog-cholera and swine-plague which came to our attention started among herds of swine fed upon garbage and swill collected from the sources above mentioned. This is significant, and it points to the undesirableness of feeding garbage to animals. In fact, if the total losses it occasions are counted, it is questionable if anything is gained in this attempt to save waste-products. It is stated in the official reports of the U. S. Department of Agriculture that in 1896 12 per cent. (which amounts to 5,440,176) of the hogs in this country died from disease.

Again, it has long been recognized that the feeding of garbage to hogs furnishes one of the most favorable channels for the introduction of hog-cholera and swine-plague bacteria. As a rule, wherever we find hogs in clean, well-ventilated pens, and fed upon wholesome food, we find thrift and health, and where the animals are surrounded with disgusting filth and fed upon decomposing slops or other unwholesome food we expect to and often do find disease.

It is, unfortunately, becoming a too-prevalent habit among our farmers to assume, as soon as one or two pigs die that some infectious disease, such as hog-cholera, is among them. It is further most unfortunate that they frequently entertain the fatalistic notion that a remedy is beyond their reach. Fully 25 per cent. of the outbreaks of reputed hog-cholera which we have investigated during the past year have not been hog-cholera or any other known infectious disease. While it is true that when hog-cholera becomes well established in a herd there is great danger that the majority of the animals will die, it is equally true that if the disease is not a genuinely infectious one that a majority of the animals can, by proper treatment, be saved. When a pig sickens and dies the thing to do is to examine, or have it carefully examined, to find out, if possible, what the cause of death is, in order that the best methods known for preventing the further spread of the disease may be promptly adopted.

If the examination shows the disease to be hog-cholera, swine-plague, or any other infectious disease, like anthrax or tuberculosis, the as yet uninfected and apparently well animals should be placed in other pens and the old ones disinfected. The animals should be given easily digested and nourishing food, plenty of sunlight and pure air. If others should become affected, the well ones should again be separated from the sick. The channel or way by

which the specific cause of the disease got into the herd should be diligently sought for. As the most common way is through the food, it is always a safe precaution to change the diet.

It is certainly not desirable to acquire the reputation of having an infectious disease among one's animals when the real trouble is due to poor hygiene, to some irregularity in their care, or to an accidental poisoning.

If the diagnosis cannot be positively made it is best to put the apparently well hogs in a separate pen, provide them with good ventilation, wholesome food, and cleanliness. *It is important that the food should be changed.* By carefully observing the method of *strict isolation*, disinfection, healthful surroundings, and nourishing diet, many epizootics of infectious diseases have been checked, and it is safe to presume that if such precautions were rigidly adhered to nearly all of the losses now sustained from dietary causes would be saved. The observance of the rules necessary for the promotion of good health among mankind apply with equal force to the lower animals.

Conclusions.

From the foregoing the following conclusions seem to be warranted :

1. The greatest amount of loss sustained from swine-diseases in this State is among hogs fed upon the swill collected from hotels, boarding-houses, and other large institutions.
2. The cause of death in certain outbreaks of disease among swill-fed hogs is the direct poisoning of the animals by the excess of free alkali (washing-soda) in the swill. These alkalies come from the powdered soaps used in washing dishes.
3. It appears that small quantities of the powdered soaps do not immediately produce bad results. It is presumable that they can be used in quantities sufficient for the needs of cleanliness with perfect safety ; but owing to the danger involved in their use it is safer not to give the water containing them to animals.
4. In addition to the unwholesomeness of garbage and kitchen-slops for animal food, and in addition to the losses sustained from the immediate effect of such kinds of food, hogs fed upon it are very liable to contract specific infectious diseases such as hog-cholera, swine-plague, and tuberculosis.
5. The enormous amount of loss among garbage-fed hogs, which in this State alone aggregates thousands of dollars annually, suggests the desirability of urging the discontinuing of the practice of

collecting swill for such purposes. Certainly if the refuse material is to be used for feeding swine it should be collected and fed while fresh and sweet. When possible, it should be kept dry, and by all means free from alkaline dishwater. It is advisable to cook all kitchen or table refuse before feeding, in order to remove the danger of infection from specific diseases. The only suitable channel for the disposal of dishwater is the sewer.

THE MUNICIPAL CONTROL OF MILK-SUPPLY IN CITIES AND VILLAGES.¹

BY W. H. HEATH, M.D.,
BUFFALO.

MUNICIPAL control or supervision of the milk industry in municipalities is, in the present state of affairs, a necessity. It should be comprehensive and made efficient by stringent ordinance, and include scrutiny and vigilance from the dairy to the consumer.

Such measures are justified by the existence of a series of conditions which menace the healthfulness of the product from its source to its distribution; by the fact that it is the most important article of human dietary from infancy to age under all conditions; that, from properties peculiar to it, it is most susceptible to contaminating influences, including bacterial growth; and, finally, by the fact that, notwithstanding its relationship to certain diseases, and especially to the scourge of the race—tuberculosis—the State and the State Board of Health are woefully apathetic or negligent in their attitude toward it.

No time need be occupied before this audience in presenting evidence bearing upon tuberculosis. The contagious character of the disease, its identity in man and the lower animals, its transmissibility from one to the other, as well as the method of restricting it, are now established facts beyond discussion.

It is not assumed that every dairy is an evil. Some few intelligent persons, of up-to-date ideas, are engaged in the business, with suitable and safe equipment; others maintain a high sense of cleanliness, yet there is no uniform or standard procedure of hygiene as there should be. Buildings are in existence illy ventilated, lighted, and cleansed, sodden and soaked with foul material, with bad environment, and where little or no proper care of the herds is given,

¹ Presented to the New York State Medical Society.

and, furthermore, where the work is carried on in such a manner as well as under such conditions that contamination with dirt and by micro-organisms cannot but occur, many of which, like that of tuberculosis and the bacillus coli, are important factors in disease.

A sanitary standard for protection should be adopted by the State under a system of inspection, supervision, and license.

1. It should include the correction of all sanitary evils existing at the present time.

2. Quarantine against the introduction of infected animals from without the State.

3. Veterinary inspection, with the tuberculin-test on all animals, sequestering those suspected and destroying those infected.

4. A feature to be insisted upon should be the isolation of the herds from other animals, as maladies which attack many of the domesticated animals (chickens, cats, etc.) may, if they do not, carry infection to human beings, and by the milk.

5. Dairy license, issued only after inspection, and subject to revocation upon the violation of proper rules, which should regulate everything pertaining to the business, buildings, herds, employes, methods of milking, cleaning, cooling, and transportation.

Transportation upon railroads in many sections should be likewise scrutinized; protection from the sun and weather at way stations, and refrigeration at terminals insisted upon. The milk should be carried only in cars especially designed for the business, by which is meant those constructed to permit easy and frequent cleaning, not previously used, or used at the same time, for the transportation of deleterious freight, such as decomposing organic matter, vegetable or animal, and additionally equipped with facilities for refrigeration during the heated terms.

Until the existing conditions referred to are remedied the milk supplied the cities is a constant daily source of infection, against which all precautions are justified and should be adopted.

In the absence of State supervision it would seem pertinent to here refer to the system adopted by the Health Commissioner of Buffalo, with the view of mitigating, if possible, the contamination mentioned. By his direction a record of the various dairies supplying the city is kept. This includes inquiry:

First, as to the herds, their health, and whether they are subjected to veterinary examination and tuberculin-test.

Second, the methods of cleaning utensils, the process and time given for cooling the milk, hour of shipment, and distance hauled.

Third, quality and source of the water supply.

Fourth, physical condition of the employés, etc.

Fifth, educational efforts in the way of causing the dissemination of literature bearing upon the interest of the dairyman and his care of the milk.

Following this, where conditions at the dairy are deleterious, or where circumstances arise of a character deemed prejudicial to the public health, instant investigation by the health department is made, and the dairyman required to correct, without delay, such conditions as may be at fault. Failing to do which, or even prior to notification, if urgency and facts demand it, the product of such dairy is interdicted at the city line; the milk-house in the city to which the milk is consigned being at the same time notified and prohibited from receiving the milk, under penalty of the revocation of license.

Under this system, the only one available under the circumstances, it is believed that decided sanitary improvement has been made in the dairies supplying Buffalo, the ratio of infection diminished, and a corresponding influence made upon the public health.

The question of dairies sterilizing their product and shipping it from the dairy sealed, labelled, with date, specific gravity, character, etc., whether pure milk, skimmed milk, or cream, as the case may be, is one that presents many features of advantage, and is worth considering under the present state of affairs.

With this reference to the possible daily pollution or infection of milk before its entry into the city, and the causes permitting it, together with the most practical method of dealing with the problem in the absence of jurisdiction, further protection from bacterial contamination and influences arising from bad sanitation within the city will be best attained by maintaining the following conditions:

Municipal protection could and can be made almost absolute, and in some communities is as efficient and aggressive as State action is negligent and deficient. Municipal ordinance should embody the following features:

1. All milk-houses should be of sufficient and proper size, and should have light and ventilation complying with the rules of hygiene pertaining thereto.

2. They should be constructed of such material as to be sanitary, as much as possible of non-absorbent material, or so made as to permit frequent and effectual flushing and cleansing.

3. Communication, by doors or other openings, with water-closets, sleeping apartments, or other rooms liable to become a source

of offence, should be strictly prohibited, nor should milk-rooms be used for any other purposes whatever than the storage of milk.

4. Storage and cooling boxes should be substantially constructed, lined with metal, elevated well above the floors, and away from surrounding walls, to permit thorough cleaning. They should be ventilated into the outer air and properly drained, but no drainage from them should directly communicate with the drainage or plumbing.

5. All plumbing should be strictly sanitary.

6. Rules with specific detailed directions for periodical cleaning of milk-house, storage boxes, cans, bottles, utensils, and information regarding the care of milk and possible sources of contamination should be adopted and conspicuously posted in the milk-room.

7. Cans should be only of such depth and such construction as to permit ready and perfect cleaning, and it should be obligatory that they be cleaned before being returned to the dairy.

8. It should be obligatory that each and every can be tagged at its source, stating the character of the milk, its source, specific gravity as determined at the dairy, with the date and hour of shipment.

9. Milk-rooms should be permitted in cellars only under exceptional circumstances, and then should comply with every requirement of modern hygiene.

10. No milk-house or milk-room should be under the same roof or in connection with any horse or cow stable, nor should it be connected with any unsanitary buildings or surroundings.

11. Construction, equipment, care, and management should be such as to obviate the use of disinfectants, and their presence or use should be prohibited. Any odor or evidence of them about a milk-house should be construed as evidence of defective sanitation.

12. During the summer months no milk should be used when over twenty-four hours old, and during the winter the age of the milk should not exceed thirty-six hours.

13. Milk on the wagon should be thoroughly protected from the weather, and especially during the summer months, by being properly iced, and should be delivered within certain prescribed hours.

14. No milkman should deliver bottles containing milk, nor leave any receptacle of his own containing milk, at any house placarded as containing a contagious disease, nor should he receive any empty bottles or receptacles from such house, or be permitted

under any circumstances to fill or refill any bottle while on the wagon.

15. A record of all cases of acute contagious diseases occurring upon the route or in the service of each milkman should be kept. Daily reference and scrutiny of the same should be made, and upon suspicion of relationship of such contagious disease to any one source of the milk-supply, or any one milk-route, immediate investigation and action should follow.

The dealing in milk in small quantities by small shopkeepers, such as grocers, confectioners, and others, should be abolished. Many of these dealers keep milk only as a convenience to their customers. Their facilities for proper storing and handling are insufficient—in fact, nothing. This traffic in milk is objectionable from the fact that it is only a small part of the business, and subsidiary to other interests. The average storekeeper has little or no information relating to milk, which, while in the store, is not only liable to absorb deleterious odors from adjacent products, from vegetables, perchance decomposing, but more seriously to contamination by micro-organisms, from dust and dirt which are tracked in from the street by the feet of customers and blown about the store by the draughts. This condition is always present and a danger, and is invited by the habit of leaving the milk-cans uncovered.

Grocers and other small dealers should be and are obliged, in Buffalo, to keep posted in a conspicuous place the names and license of those from whom they obtain their milk.

To abolish this store peddling will be difficult, but existing conditions should be mitigated by personal instruction to the dealers and frequent inspection by those designated for that duty.

Adulteration of milk by water or contamination by preservation may be considered of secondary importance to the question of sanitation. Stringent ordinances relating to both are proper. Concerning the former, the use of the lactometer as a method of testing has given rise to much discussion through the possibility of evasion at the hands of crafty and unscrupulous dealers. State and city laws upon this feature are liberal, placing the standing as low as it has been deemed possible for normal milk to assume under ordinary conditions.

Vigilance should be exercised to preclude the possibility of water adulteration; though the lactometer is not perfect or absolute, and may be superseded by methods more exact, it is yet a useful instrument, and should be used to discover suspicious cases, which may

be subject to further action. Adulteration of milk by water is not a common occurrence in Buffalo, and is seldom found among representative dealers. It is in the main confined to peddlers, who, having an unusual and unexpected demand, resort to the Buffalo water-supply for assistance. (Buffalo water-supply is so good that it is not considered deleterious or dangerous.) The peddling of milk in the streets as well as the distribution of milk through grocery stores and small dealers should properly be abandoned.

The yearly license system, with power of revocation and with heavy penalties for violating ordinances relating to the business, and with the further penalty of exclusion from the trade after a certain number of offences, should be adopted.

The features here specified are necessitated by the fact that in all municipalities the evils they endeavor to cover and prevent have been found to exist, and through their existence contamination has occurred, and disease has been definitely assigned to them. Almost all these directions are, through the direction of Health Commissioner Wende, embodied in the ordinances of the City of Buffalo, and enforced without favor. They have been found efficient, and the security they have given to milk has been demonstrated by the low rate of infantile mortality through diseases known to be due to milk.

In conclusion, features worthy of being incorporated to fortify existing laws relating to the milk industry may be summarized as follows:

1. The method of indirect, though arbitrary, attitude toward the dairies supplying cities, and over which there exists no jurisdiction.
2. The compulsory system of "tagging," giving character, dates, age of milk, prohibiting the sale of milk over twenty-four or thirty-six hours old.
3. Sterilization and preparation at dairy for ultimate delivery, with label system of date and character.
4. Prohibition of disinfectants. Milk-house conditions must preclude their necessity.
5. Protection from infected house by interchange of bottles and receptacles.
6. Record and supervision of the relation of contagious diseases to various milk-routes.
7. The abolition of street peddling and grocery-store dealers.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

THE EFFECT OF TUBERCULIN AND OF GLYCERIN-EXTRACT FROM TUBERCULOUS ORGANS. (By GARINO.) Koch has shown that healthy porpoises can stand 2 g. of tuberculin subcutaneously administered, without visible suffering, while tuberculous ones will die within six to thirty hours after the injection of 0.5 g. of tuberculin. If death occurs before the sixth or after the thirtieth hour, then not the tuberculin, but intercurrent infectious disease (pneumonia, malignant oedema) are demonstrably the cause of death.

Porpoises which have died in consequence of tuberculin show acute inflammation at the point of injection, which becomes tinged with a pronounced violet color; the lymphatic glands of the region are likewise inflamed. The liver and spleen, beside tuberculous changes, show on the surface dark-red, pointed or lentil-shaped spots, which, under the microscope, prove to be enormously distended capillaries which lie around the tubercle. These capillaries are surcharged with red blood-corpuscles, so that circulation seems to be hindered in places. Such spots are found on the lungs, but not constantly. This condition is typical of the tuberculin effect.

From the tuberculous lung of a cow Garino carefully removed 1500 g. of tubercles and extracted them in a 5 per cent. solution of glycerin-water in a thermostat at 100°—two hours the first day, and on the second and third day one hour each. This filtration, in which there were no more living germs, was then steamed down to one-tenth in a water-bath. Three c.cm. of this latter filtration injected subcutaneously into some healthy porpoises caused an abscess which opened speedily and showed little sign of healing. The general condition of the subjects was not disturbed. They even gained in weight.

Tuberculous porpoises died after an injection of 3 g. and more of the extract, but not within six to thirty hours, as in Koch's experiments, so that death was not to be attributed to the effect of tuberculin. The post-mortem examination showed no result pointing that way.

Garino concludes from these experiments that the effect of tuber-

culin is caused through matter which is formed and multiplied in the bouillon cultures, but which in the living organism is formed only accidentally, or not at all, or which is quickly gotten rid of.—*Deutsche Thierärztliche Wochenschrift.*

DISCUSSION OF METHODS IN BERLIN FOR FIGHTING THE HOOF- AND MOUTH-DISEASE.—On January 14th a conference of landed proprietors, veterinarians, and bacteriologists was held in the imperial health-office to discuss methods of investigation and means of defence against hoof- and mouth-disease, which has so much injured the German stock-raiser. The director, privy-councillor Dr. Kohler, presided. As a basis of discussion, the results of the experimental investigations of two commissions were presented: those made in the health department itself in regard to the disease, and those made since April of last year in the Prussian Institute for Infective Diseases. Among those present were the Minister of State, Count Zedlitz, as a landed proprietor; as veterinarians, Profs. Schutz and Eggeling from Berlin, Drs. Lydtin (Baden-Baden), Gornig (Munich), and Vollers (Hamburg); as bacteriologists, Dr. Löffler (Greifswald) and chief staff-physician Wersser (Berlin).—*Idem.*

MACROSCOPICALLY VISIBLE TRICHINA.—According to the *Deutsche Thierärztliche Wochenschrift*, Dr. Simon, in Gorlitz, noticed a three-year-old sow, over the muscles of whose body, especially on the diaphragm, ribs, and muscles of the tongue, innumerable calcinous spots of from $\frac{1}{2}$ to 1 mm. in size were plainly visible to the naked eye. The muscles of the heart were entirely free. The microscopic investigation, when acetic acid had been applied, showed long, spindle-shaped calcinations lying within the muscular tissue, with complete disappearance of the contractile substance of the latter. In some of the preparations eye-shaped capsules were plainly visible.—*Idem.*

THERAPEUTICS OF WOUNDS IN THE JOINTS AND LIGAMENTS.—At a general meeting of the Brunswick veterinarians Dr. Schrader, of Helmstadt, reported in regard to his therapeutics of wounds in the joints and tendons. Formerly he had always tried to heal the wound by firing, tannin, ferrum sesquichlor, with collodion, etc. However, he never succeeded with these means, and for this reason he decided to treat wounds in the joints and tendons by making an incision, irrigating it with antiseptics, and powdering it with iodo-

form tannin. He has reached very satisfactory results by this means. Schrader described the course of healing in several cases where the tendons of the pedal bone, the elbow, and the fetlocks had been injured. Dr. Bertram said that he could heartily recommend, as very effective in such cases, a powder consisting of iodoform, tannin, and camphor. Saake said that he had found that a sublimate, 1 to 5000, with which the wounds could be washed out, brought better results than the old method of treatment.—*Thierärzt. Centralblatt*, February 20, 1898.

THE SEWING OF WOUNDS.—Prof. Fröliner sewed up a wound in the hindleg of a horse, which was about 58 cm., long and 20 cm. deep, and which extended from the thigh to the outer angle of the haunch-bone. The wound was comparatively fresh. The treatment was: disinfecting irrigations for a quarter of an hour; sewing the wound with sterilized silk; draining and keeping open the lower corner; on the fourth day a rise of 1° in temperature and incipient necrosis at one point in the thread. He then removed the silk, used antiseptic irrigations and a subcutaneous injection of spirits of camphor. In spite of this the horse died of septicæmia the following night. The postmortem examination showed necrosis at the edges of the wound, and the symptoms of septicæmia. This would probably not have occurred if the wound had received open treatment. Since that time the sewing of large and not entirely fresh wounds has been discarded, and the slower but less dangerous open treatment preferred.—*Idem*.

FRENCH.

UNDER THE DIRECTION OF DR. ALEXANDER GLASS,
PHILADELPHIA.

DISINFECTION OF WOUNDS AND INSTRUMENTS BY A SOLUTION OF FORMALIN.—The most powerful sterilizing and deodorizing agent is the commercial solution of formalin. Formalin is twice as powerful as corrosive sublimate. This has been proven by taking a solution of 1 to 200, which was found to be ten times as strong as a solution of corrosive sublimate of 1 to 1000. As a deodorizing agent formalin possesses properties which are extraordinary. In tissues which have become gangrenous the odor is destroyed almost immediately when the parts have been dressed with a solution of 1 to 200; under various names formalin has been sold and proven to be a sterilizer and disinfectant of the first

order. In solution of 1 to 200 it is very useful to sterilize instruments, and in this preparation it will not irritate the eyes or the skin when used. In wounds, gangrene, or the destruction of tissue this preparation is found to answer the purpose best, although some observers prefer to use a solution of 1 to 400; when mortification or destruction of tissue is present a solution of 1 to 1000 is not sufficient.—*Journ. de Pract.*

PRESCRIPTIONS. *For Erythema-Scratches.*—Menthol, 1 gramme (15 grains); salol, 2 grammes (31 grains); olive oil, 3 grammes (46 grains); lanolin, 80 grammes (122 grains). Apply a small portion to the parts affected three times daily.

To Counteract Premature Spasmodic Contraction of the Uterus.—Tinct. iodine, 1 gramme (15 grains); alcohol, 2 grammes (31 grains). Give five drops in a little tepid water every half hour.

Unguentum Eucaine for Erythema, Inflammation of the Mucous Membrane, and any Painful Swollen Surfaces.—Eucaine muriate, 1 gramme (15 grains); olive oil, 2 grammes (31 grains); lanolin, 9 grammes. Rub a small portion into the parts three times daily.

Antiseptic Powder for Dusting on Unhealed Wounds.—Iodoform, hydrargyri chloridum mite, equal portions of each. Dust a small portion on the affected parts twice daily.

Unguentum Sozoiodol for Wounds.—Sozoiodol potassii, 10 parts; lanolin, vaseline, of each, 15 parts. Apply a small portion to the parts affected twice daily.

For Pruritus of the Skin and Erythema where there is Intense Itching.—Chloroform, 8 grammes; almond oil, 60 grammes. Apply a small portion to the parts three times daily.—*Recueil de Medicine.*

SELECTIONS.

BANDITS WHO MAKE SOCIETY THEIR PREY.—The coachman's bills represent many a dollar never earned; he divides with the tradesmen; unscrupulous veterinary surgeons are parties to the general game for swindling the rich. The fact that there is an organized system of robbery in this city of the majority of its wealthy and fashionable members is not generally known, and the idea would hardly be credited by the intelligent citizen, nor would even the victim of the powerful clique himself believe it possible that he was being held up in such a matter-of-fact and successful

manner at first glance. The facts are in evidence, however, and there can be no getting around them. The cheerful victim of this little bunco game is the society man, who feels that he must have his pair of stylish horses, his cob, or his trotter to appear before the public in the proper way. Some there are who go in for big stables, having a new turnout for each entertainment or day in the week. These must pay heavily, indeed, for their little diversion, as the larger the purse the greater amount demanded by the bandits of Manhattan.

The bandits are none other than "Jeems" and "'Enry," the swell coachmen who are in the main smart English horsemen, and who flourish and wax fat on their clever scheme. The coachman is the principal thief, the head of the order of banditti, but he has numerous aids and abettors. The smith who has charge of shoeing, plating, and other work of the kind, is one of his trusty allies; often an unscrupulous veterinarian has a hand in the pie, and altogether the man who finds it impossible to get along in this world without his carriage and pair is fleeced right and left until the wonder is that he will stand it.

Plainly told, the coachman has entire and absolute charge of the horses in almost every stable in this city; and he is permitted to act as he sees fit in the management of the turnout, which means that he has the power to buy horses, have them shod, clipped, fed, and attended to in every way necessary by whoever gives him the largest commission for the privilege of rendering the bills. This is the system, and if anyone believes that the cheerful bandit who has all this power is playing any favorites or overlooking any bets, all he has to do is to get a glimpse at some of the bills that are turned in from the veterinarian, the smith, the feed-man, etc. Some of these are most astounding from a practical point of view, and would naturally indicate that they are never even looked at by the owner who pays them.

There are many tricks of the trade, and they are all worked at some time or other on the unsuspecting society man, who, despite a most stupendous bluff, rarely knows a horse's hock from his withers.

When things go a little slow for "Jeems," "milady" finds it impossible to get her carriage some fine morning, because the horses are lame. This is deplorable, but what are you going to do about it? Simply hire a cab instead. The horses must go to the smith, or the veterinary surgeon must be called to look after them. The next day they are all right, and a comfortable little

bill is sent in and paid without question, when it is any odds that there never was anything whatever the matter with them.

The coachman decides who shall attend the stable, and while, of course, he must keep his charges in pretty good general condition, he is not likely to secure the best veterinarian in case of real illness, because the first-class man would hardly enter into any scheme to rob the owner. So the unscrupulous surgeon is called in, charges double the price, and does inferior work. If the owner should by chance have an idea of getting a particular man to do the work, in a majority of cases his plans are knocked in the head by the treachery of the coachman. Medicine ordered is tossed out of the stable window; the horses do not get better; the coachman claims to know a man who can fix them up in no time. He is called, and they are fixed up, and the two conspirators divide the profits. So it goes through all the ways in which it is possible for the horse-owner to be fleeced, beginning with his purchase of the horse, and winding up with the carriage man and the things that are needed about a stable.

The whole system is based, of course, on the ignorance of the owner, and it is surprising that anyone could remain content to know so little about his own property, while so often professing a genuine love for it. It is safe to say that not one out of ten owners of horses in the city has any intelligent idea of them, what it should cost to keep them, when they are sick or well, well or badly fed, shod and cared for, or why he ever bought them in the first place. The whole thing is planned and arranged for him, and he accepts without a question, and pays the bills.

A prominent veterinarian, speaking of the matter to a *Sunday Telegraph* reporter, said: "It is astonishing that the present system is permitted to go on. It is a great evil, and is doing the horse-business a great deal of harm, besides fostering a lot of unscrupulous people who are shrewd enough to take advantage of the utter ignorance of owners on the subject of horses. The main trouble seems to be that no one is brave enough to go to the front and attack it, and also that the average owner would rather be robbed systematically than to take the trouble to find out for himself. I know a number of men who, when told of the state of affairs, replied that they had no time to see that things were right. Others (and these, I believe, are in the majority) have implicit faith in the men in charge of their stables, and leave everything to them. And the stable-men cheerfully take everything that is left to them.—*From the New York Telegraph, Sunday, March 13, 1898.*

REPORTS OF CASES.

MORBUS MACULOSUS (PURPURA HÆMORRHAGICA) IN A DOG.

BY WILFRED LELLMAN, D.V.M.,

PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS AND PARASITES AND PARASITIC DISEASES, NEW YORK COLLEGE OF VETERINARY SURGEONS, NEW YORK CITY.

On April 19th of last year I was requested to examine a dog which had been sick for about two weeks. According to the owner's history, the animal had had very poor appetite, and had shown considerable depression. Within the last three days a remarkable swelling of the abdomen had appeared.

A thorough clinical examination was made, the result being as follows: Male mastiff, about six years old, in poor state of nutrition; hair erect and lustreless. The conjunctival membrane highly anæmic; pulse small and wiry, irregular, beating about 100 times per minute. The heart-beat is weak, still it can be felt, as the patient was considerably emaciated. Percussion showed enlarged dulness of the heart-region. While auscultating the heart I heard two by-sounds, one during the systole, the second during the diastole. The first one I considered due to an insufficiency of the mitralis, the second one to the pressure of pericardiac liquid. The rectal temperature is 100° F., the surface of the body appeared to have subnormal temperature; the nose is dry. The respiration appeared dyspnoic, thirty-five times per minute. Percussion of the thorax shows several regions of dulness. Auscultation of the lungs proves sharp vesicular and bronchial bruits. When examining the mouth I detected numerous hemorrhages and ulcerations of the gums and the buccal mucous membranè. A very offensive odor diffuses from the mouth. The tongue appeared dry, and would not thrust off epithelia. The abdomen shows an immense swelling. Percussion shows remarkable dulness. When palpating the abdomen I found a considerable quantity of liquid within, also enlargement of the liver and spleen. The defecation is retarded, the feces being of hard consistency, of yellowish-grayish color, covered with mucus, which shows small streaks of blood. The animal has no appetite, but increased thirst. The urine is of yellowish-red color, specific gravity 1060. By means of Esbach solution I detected 1 per cent. albumin; sugar is not present. A microscopical examination shows red blood-corpuscles, white blood-corpuscles, epithelial casts, which are partially covered with red blood-corpuscles; epithelial cells of the bladder are also found.

The psyche of the patient shows considerable depression. The posterior extremities show a slight œdematous swelling. The blood was examined by means of the Thoma-Zeiss hæmacytometer ; nothing particular, except from anæmia was found ; the properties of the red blood-corpuscles and the white ones are scarcely altered. In order to make the diagnosis sure I made a test puncture of the abdominal cavity. The liquid proved to be a bloody exudation. As for the differential diagnosis, morbus maculosus and scorbutus could only be taken into consideration. At present it is hard, from the clinical standpoint, to draw a distinct line between these diseases, as the etiology of these hæmorrhagic diseases is quite obscure. Under the circumstances, it must be left to the judgment of the veterinarian whether he has to deal with morbus maculosus or scorbutus. Though human pathology considers ulcerations of the gums as something characteristic of scorbutus, we have to admit that they can also be met with in morbus maculosus. Generally, I think, we are right when considering scorbutus of not such acute and grave character as morbus maculosus. Concerning the etiology of scorbutus, we presume that it is due to irrational and poor food. This, however, was to be excluded in this case, as I informed myself thoroughly about the way in which the dog was nourished. The possibility of being poisoned would also be excluded, according to the positive assurance of the owner.

Prognosis, of course, was very bad. The animal lived for four days longer, then all at once acquired a severe epistaxis. Exitus vitalis under the symptoms of hemorrhage.

An autopsy was held immediately after death, the result being as follows : Abdominal cavity contains two and one-half grammes of bloody fluid, hemorrhages in the submucosa of the stomach and intestinal tract, numerous ecchymoses under the peritoneum, hemorrhages within the liver, kidneys, spleen ; liver immensely enlarged, spleen also quite considerably. The pericardium contains about one-half pint of bloody liquid. As further pathological alterations, I mention endocardial hemorrhages, insufficiency of the mitralis. The lungs showed hemorrhagic infarcts and severe chronic bronchitis. Hemorrhages within the cutis, subcutaneous tissue, muscles ; articulation could not be found.

CLINICAL REPORTS—NEW YORK COLLEGE OF
VETERINARY SURGEONS.

Fracture of Ilium. Bay horse, 15.3, working in furniture-van, picked up a nail, and while the driver was trying to pull it out,

the horse fell over the pole, turning completely, and fractured the shaft of the ilium. Horse brought to hospital, condemned, and destroyed.

Successful Operation on a Schirrous Cord, with Fistula. Black gelding, eight years old. A rod composed of cotton, gum-arabic and bichloride of mercury, made about as thick as the lumen of the fistulous tube and about eight inches long, was forced into it. Considerable swelling of the scrotum followed, which gradually subsided, and on the fifth day the plug came away the length of the rod.

The horse was given internally one-half drachm of iodine crystals three times a day for five days; this was followed by one-half drachm doses of iodide of potash three times a day for a week.

Result: Obliteration of the fistula, tumor reduced two-thirds its size, and does not in the least interfere with the usefulness of the horse.

I. AN OBSCURE CASE OF LAMENESS. II. TETANUS;
RECOVERY.

BY W. G. HOLLINGSWORTH, D.V.S.,
UTICA, N. Y.

CASE I.—*Subject.* Gray gelding, roadster.

History. Slightly lame in the off hindleg for a week. After a careful examination, was unable to make a satisfactory diagnosis, and reserved decision for subsequent visit, which I made one week later, with the same result; animal about the same, and the lesion just as obscure. Had the shoes pulled off and the animal sent to pasture. Occasional visits to the pasture-field during the summer, at which I found the animal much the same. When taking him up in the early fall I made a very thorough examination, using an 8 per cent. solution of cocaine at the hock and fetlock, but he was still lame. At this time a slight swelling was noted at the stifle and bursal; flinch on pressure.

Diagnosis. I now came to the conclusion that this was a case of chronic gonitis, although I did not think the lameness was ever well enough marked to indicate any pathologic changes in or around the joint. I aspirated the sac to see if there was any inflammatory lesions existing. Microscopic investigation of the fluid proved negative. Concluded that the pressure of the fluid in the sac was sufficient to produce the slight lameness.

Treatment. Applied a blister, and after about four weeks everything seemed to have returned to a normal condition, and I commenced giving light exercise. This was followed by a return of

the bursal swelling and lameness. The actual cautery and blister were then applied, and the same restoration obtained, but when exercise was given a return of the swelling and lameness followed, but a longer period intervened. Somewhat discouraged and less hopeful of a good result, I suggested to the owner aspiration and injection into the sac. Injected nearly a drachm of pure carbolic acid, which was followed by a severe inflammation, which subsided in a few days. He was placed in a box-stall for a month, after which he was cautiously driven, the exercise increased as he seemed able to stand it. At this writing there has been no return of bursal swelling, no lameness, and the animal seems absolutely well.

CASE II.—*Subject.* Black mare.

History afforded no direct cause; was driven by the owner to my office, stating his belief that his mare had pneumonia, and was apparently well the day previous.

Symptoms: Jaws were set, nostrils widely dilated; increased respirations, which caused the owner to suspect pulmonary trouble.

Diagnosis: Tetanus.

Prognosis: Unfavorable; advised removal to my hospital, which was done at 3 P.M. of same day, when the rigidity of muscles was much more marked, general stiffness well pronounced, and mare much excited.

Treatment: Placed her in special stall, darkened, and placed slings under her, which seemed to annoy her very much. Gave her 50 c.c. of antitetanus-serum, which dose was repeated early in the morning by an attendant. When visited in the morning the excitement had passed off, otherwise the mare was about the same. Only gruel could be taken, owing to the trismus. The serum treatment was continued in smaller doses, and only carried to 50 c.c., when the animal grew excited or paroxysms were noticed. Trismus continued for two weeks, when the jaws commenced to relax, though the mare continually trying to relax them by grasping the manger. About the eighteenth day she could eat some hay and oats. No purgative medicine was given, as I do not approve of its use. Rectal injections were given to relax the bowels. I try to keep them eating or drinking. She was kept in slings three weeks and then placed in box-stall, 12 x 12; exercised a little daily; was able to get up after lying down without assistance, though the stiffness was still well marked. Exercise continued for a week longer, and then the animal was discharged in good condition.

This is the second case treated with serum, both recovering. The other case was of a more subacute character.

AMONG THE PROFESSION IN NEW YORK STATE.

Dr. James L. Robertson, professor of theory and practice at the American Veterinary College, has been quite seriously ill for several months. Every veterinarian who has had the pleasure of forming the acquaintance of our genial colleague will wish for him a speedy and complete recovery. Dr. Robertson met with the loss of his father a few months ago.

Dr. James M. Richardson, recently house-surgeon of the New York College of Veterinary Surgeons, made a trip to England in March.

Dr. Herman Biggs has made an important communication on the subject of rabies to the New York City Board of Health.

Dr. Claude D. Morris, of Pawling, was a visitor to New York City in March, and purposes moving to Binghamton shortly.

Dr. R. S. Huidekoper, of New York City, is a great admirer of bull-terrier dogs, and in "Corona" had the prize-winner for several years in America.

Dr. H. F. Foote, of New Rochelle, finds much pleasure among his dogs, and his kennels contain many fine specimens among the toy varieties.

Dr. R. B. Plageman, of Brooklyn, loves the field of canine practice. He thinks rabies an extremely rare disease, and the dangers of dog-shows in spreading this affection not worth considering.

Dr. G. Howard Davison, of Altamont Stock-farm, owns some of the best Shropshire sheep in the world. At Millbrook he finds much pleasure and recreation in attaining the highest excellence among his flock.

Dr. William H. Pendry, of Brooklyn, was for many years a great admirer of the thoroughbred horse, until the days of the "dope" robbed them of much of their attraction.

Dr. William Sheppard, of Sheepshead Bay, says there is no form of animal that can compare in beauty, power, and feats of speed with the thoroughbred, and legislation destined to limit the sport of man from time immemorial is a step backward in the race of civilization.

Dr. J. Elmer Ryder, of New York City, finds the keenest delight mounted high on a skeleton brake-wagon behind a pair of high-stepping hackneys.

Dr. Richard E. Buckley, of the borough of Manhattan, finds a deal of pleasure along the speedway in testing the racing qualities of those who seek this spot to fly their racers.

Dr. W. D. Critcherson, of Greater New York, finds a pleasant family horse and the company of his wife and children on a quiet afternoon's drive in Central Park a great relief from the pressure of professional work.

Dr. L. McLean, of Brooklyn, finds the driving of horses irksome, and would rather use "shank's mare" in his perambulations around the borough of Brooklyn.

Dr. H. D. Gill, of New York City, cannot keep away from the sale-centres of trotters, and his fast steppers on the racetrack have won him fame and courted fortune.

Dr. E. B. Ackerman, of Brooklyn, spends all his spare hours in the "City of Churches" looking after the welfare of the horses of that city from inhuman drivers and worse owners.

Dr. J. S. Cattanaach, of Greater New York, finds his keenest delight in following his professional duties behind a pair of trotting mules.

Dr. Nelson P. Hinkley, of Buffalo, takes pride in his pair of well-drilled horses and ambulance. Their prompt response to the gong and eager way of responding to duty increase their worth and attraction to the owner.

Dr. Benjamin P. Wende, of East Buffalo, thinks the attraction of a flock of sheep greater than any of the domesticated animals. He likes their gentle ways.

Dr. Claude D. Morris, of Binghamton, admires the animal that fills to overflowing the family pail and which furnishes the best of foods in all ages of man.

Dr. John Dougherty, of New York City, finds the heavy draught-horse the highest perfection of animal power and worth and his exhibition of unlimited strength in hauling great burdens a sight worthy to behold.

Dr. F. C. Grenside, of New York City, revels in the proper training and a perfectly made toilet of a horse prepared for the sale-mart.

Dr. S. S. Field, Jr., of New York City, considers the well-trained stage-horse the acme of perfection, and would rather follow the drilled stage-horses than pursue the uncertainties of routine practice.

Dr. Cooper Curtice, of Moravia, would rather fathom out the way and the methods of transmission of the infectious and contagious diseases of the domesticated animals than to be tied to the care of everyday cases of routine practitioners.

Dr. Herbert Neher, of New York City, would rather look through the lens of a microscope and view the field of nature's complete work than study the uncertainties of the firing-iron.

Dr. Olof Schwarzkopf, of Flushing, thinks that life is not worth living unless one can combine the field of teaching with that of daily investigation.

Dr. John Faust, of Poughkeepsie, says that student-life never ends in comparative science, and only mature years of study and investigation make one worthy of the name of veterinarian.

Dr. William H. Kelly, of Albany, spends many sleepless nights as to how one is to maintain the pristine attraction of State laws for regulating the practice of veterinary science, and keep them from being violated, or the discovery of loopholes and flaws for evading their requirements.

Dr. Arthur O'Shea, of New York City, is now out of an occupation. The end of the legislative session in the Empire State fills his heart with sadness, for there remain no other worlds for him to conquer. Conquest by legislation is the target of his powers.

Dr. R. W. Hickman, of New York City, wonders what foreign countries will find next to prohibit American meat-products, and what additional vigilance is possible to demand of him and his able staff in this part of the Government service.

Dr. H. Clay Glover, of Greater New York, says there can be no more attractive sight to man than a smart trap, a fetchingly costumed lady, and a well-fed and groomed dog spinning along the drives of Central Park.

Dr. Charles Cowie, of Ogdensburg, says that official duties in watching ports of entry that may be free from dangerous diseases is calculated to try thoroughly one's patience and judgment.

Dr. B. H. Pendry, of Brooklyn, has been called to military duty with the 13th Regiment of New York State.

Dr. John A. Bell, of Watertown, finds the greatest difficulties in veterinary sanitary police-work in educating public sentiment to a proper appreciation of the need and value of stringent measures in the production and sale of milk.

Dr. R. R. Bell, of the "City across the Bridge," says of all the thankless tasks one might be heir to, that of editorial fame outstrips them all. Its returns are wholly disproportionate to the time and labor given, and causes him to wish many times that some of his correspondents had his job for a season; they could do it much better.

Dr. H. S. Wende, of Tonawanda, a member of the 25th Separate Company of New York State Militia, has been called to the front in the Hispano-American war.

Dr. Edward N. Leavy, of Gotham, considers the domain of canine and feline practice the sphere of women veterinarians, and there will never be a proper regulation of matters veterinary until the college doors are open to students of the gentler sex.

Dr. Cooper Curtice, of Moravia, was a visitor to Philadelphia in April, and will engage in some special work in the Keystone State under the direction of the Pennsylvania Livestock Sanitary Board.

Dr. William H. Pendry, of Brooklyn, of Troop "C," National Guard of New York, has fitted up one of the most complete veterinary equipments in conjunction with any of the cavalry of New York State. Dr. Pendry is a member of Troop C and holds himself in readiness to respond to the nation's call should his services be required.

Dr. L. E. Willyoung, of Buffalo, has moved from 395 Ellicott Street to 119 West Tupper Street, and is making a specialty in the treatment of dogs.

The Bull-terrier Club of America, of which Dr. R. S. Huidekoper is secretary-treasurer, had their inaugural bench-show of all terriers and bulldogs at the American Horse Exchange, April 21st and 22d. Over three hundred dogs were benched, and the show as a whole was very successful. Dr. Huidekoper was superintendent and Dr. H. D. Gill was veterinarian.

Dr. Gill was very pleasantly entertained by Dr. and Mrs. Bell at their very pretty home in Brooklyn. Messrs. Gill and Bell discussed veterinary education and the veterinary colleges until the small hours of the morning.

Drs. Eli Strauss and Alphonse J. Dodin have been appointed veterinary inspectors of the Health Department for the Borough of Bronx.

The following is a list of veterinarians now in the Government employ in the district of Greater New York: Drs. William H. Rose, inspector-in-charge of export live-cattle; H. Brister, R. R. Letts, R. W. Hickman, inspector-in-charge, Wilbur J. Murphy, Louis Abel, E. A. Parsons, James H. Ferster, John B. Hopper, and W. J. Reagan.

Dr. R. S. Huidekoper has been called to Washington on military matters.

Dr. Claude Morris, while in New York recently, visited the American Veterinary College and the New York College of Veterinary Surgeons.

Dr. Thomas Giffen, who has been suffering from locomotor ataxia for some time, has permanently retired from business. Dr. Blakesly succeeds him in practice.

Francis D. Bowne, senior student of the New York College of Veterinary Surgeons, has gone to the front as Quartermaster-Sergeant of Squadron A.

One of the editors of the JOURNAL had the pleasure of inspecting Dr. R. R. Bell's hospital in Brooklyn. His office had an air of methodical business prosperity, with a well-stocked pharmacy and instrument-case, in which were noticed all of the latest improvements in tools. The hospital is fully equipped with soaking-stall, an excellent set of stocks and a most commodious box-stall for colic cases or paddock. His buggy, and that of his assistant, Dr. Jenks, are equipped with an emergency kit—mixtures of all sorts—tooth-rasps, firing-irons, etc.—and, in fact, the most perfect outfit ever seen by the writer.

Dr. Herbert Neher, of New York City, has severed his connection with the Metropolitan Traction Company, where he has been for the past ten years, and is about to establish himself permanently at Fort Edward, Washington County, N. Y., where he intends to build himself a substantial home and hospital. As the doctor's health has not been the best for the past year or more, he hopes to derive benefit by the change.

Dr. George P. Biggs, Secretary of the New York College of Veterinary Surgeons and Professor of Physiology, has just returned from his wedding tour.

Dr. J. C. Cattnach, Jr., is about to start for the Klondike.

Dr. Veranus A. Moore, of the New York State Veterinary College, has made a number of valuable contributions to the study of veterinary pathology during the past year.

Dr. John J. Cattnach, of New York City, will be one of a prospecting party to enter the Klondike region about April 1st.

Dr. H. D. Hanson, of New York City, will shortly issue two books of interest and importance to the veterinary profession.

Veterinarian G. Howard Davison was a visitor to Detroit, Mich., in February.

Drs. T. G. Sherwood and H. Clay Glover were the veterinarians to the Westminster Kennel Club Show at Madison Square Garden in February.

Without a vacant place and with one of the best dinners ever spread, surely the kind host and hostess, Dr. and Mrs. H. D. Gill, of New York, must have enjoyed the evidences of appreciation on all sides exhibited by their guests on March 3d, Drs. Austin Peters, Leonard Pearson, Wm. H. Lowe, W. Horace Hoskins, E. B. Ackerman, R. R. Bell, J. S. Cattnach, J. H. Ferster, R. W. Hickman, J. E. Ryder, with Drs. H. D. Gill and R. S. Huidekoper seated at the respective ends of the beautifully arranged and decorated table.

THE EMPIRE STATE VETERINARY COLLEGES.

The New York College of Veterinary Surgeons; chartered in 1857; granting the degree (V.S.) Veterinary Surgeon; still in active existence, and located now at 154 E. 57th Street, New York City. Prof. H. D. Gill, Dean.

The American Veterinary College; chartered in 1875; granting the degree (D.V.S.) Doctor of Veterinary Surgery; still in active existence, and located at 141 W. 54th Street, New York City. Prof. A. Liautard, Dean.

The Veterinary Department of Cornell University was created at the inauguration of the University in 1868.

Since that time the right has been maintained to grant degrees in veterinary medicine.

The degrees granted were bachelor and doctor of veterinary medicine, the former being the graduate degree given on the basis of four years of successful study in the institution. The doctorate

was an advanced degree granted after two more years of successful study, which might, however, be *in absentia*.

The Columbia Veterinary College; chartered in 1878; granted the degree (D.V.S.) Doctor of Veterinary Science; closed its doors 1884, by amalgamation with the American Veterinary College.

In the New York State Veterinary College, which has suspended the veterinary department of the University, the degree of doctor takes the place of the old University degree of bachelor, and is granted on the basis of three years of successful study in place of four, as formerly required in the University veterinary department.

The New York State Veterinary College is located at Ithaca, on the campus of Cornell University, and the Legislature has voted thousands of the people's money to equip it and keep it going. The announcement for the coming year gives the class for 1897-1898. There are five third-year students, only one of whom is from New York; eight second-year students, six of whom are from Ithaca; and four first-year students. This is a very weak showing for the amount of money expended. What is the cause? The standard of admission to this and other veterinary colleges in the State has been made so high by the Board of Regents as to practically bar the majority of young men who aspire to the practice of veterinary medicine. A certificate of forty-eight academic counts is required to enter. The number of counts represented by each subject is: English, 8; geography, physical and political, 2; drawing, 2; American history and civics, 2; plane geometry, 4; algebra, 4; elementary French, 4; elementary German, 4; Latin, Cæsar and grammar, 8; chemistry, 4; and geology, 4. This is a formidable list, and it is pronounced unreasonable by some of the foremost scientific men in the State. If the Regents do not reduce the number of counts the Legislature should take the matter in hand next winter. It is absurd to spend the people's money in such a way as to furnish such insignificant results. While the veterinary colleges of this State are being strangled by the action of the Regents, those of other States and Canada are doing a flourishing business. Students unable to pass a preliminary examination here find no difficulty in entering the schools at Toronto, Montreal, and elsewhere.—*Turf, Field, and Farm*.

In March there was a conference of representatives of the three veterinary schools with the Board of Regents, and the Regents' counts were reduced from 48 to 24, or a two-year instead of a four-

year high-school course, and under the present ruling of the Board students can enter any of the New York veterinary schools with only twelve counts, and have until the beginning of their second session to make up the other twelve. The Regents also recommended a union of the two New York schools, in the event of which such a school might become connected with the Columbia University. At the Regents' suggestion, a committee was appointed by the Trustees of the New York College of Veterinary Surgeons to bring about such a union.

Melvill Dewey, Secretary of the Board of Regents, at the conference of Colleges, put himself on record by saying that New York City, on account of its clinical advantages, was the proper place for a veterinary school.

Cornell has acquired a medical department, to be established in New York City.

Amalgamation of the two New York veterinary schools and their affiliation with Columbia University, with a yearly endowment. The Faculties of the two schools would make an excellent teaching-staff. Such a union and affiliation would insure perpetuation of both schools and the names of the founders, Dr. Liautard in particular.

Reduction of Regents' counts from 48 to 24 in the Empire State for veterinary students.

NEW YORK ASSOCIATIONS.

New York State Veterinary Medical Society. Officers : President, W. L. Baker, Courtland ; Vice-President, Roscoe R. Bell, Brooklyn ; Secretary-Treasurer, C. D. Morris, Binghamton. Meetings : Annually in September.

Veterinary Medical Association of New York County. Officers : President, R. S. Huidekoper, New York City ; Vice-President, James L. Robertson, New York City ; Secretary, Robert W. Ellis, New York City ; Treasurer, H. D. Hanson, New York City. Meetings : First Wednesday of each month.

Niagara and Orleans County Veterinary Medical Association. Officers : President, James Martin, Lockport ; Vice-President, W. E. Stocking, Medina ; Secretary-Treasurer, J. P. Thomson, Niagara Falls. Censors : George Kesler, Holly ; W. R. Hunter, Niagara Falls, and M. D. Williams, Middleport. Meetings : January, April, July, and October.

Oneida County Veterinary Medical Association. Officers : President, F. Morrow, Oneida ; Vice-President, Wilson Huff, Rome ; Secretary-Treasurer, J. M. Currie, Rome. Meetings : Quarterly.

Genesee Valley Veterinary Medical Association. Officers : President, Albert Drinkwater, Rochester ; Vice-President, W. G. Dodds, Canandaigua ; Secretary, Albert Tegg, Rochester ; Treasurer, L. R. Webber, Rochester. Meetings : Semi-annually, January and July.

New York German Veterinary Medical Association. Officers : President, G. R. Sattler, Newark, N. J.; Vice-President, Rudolph Leis, Newark, N. J.; Secretary, Edwin Ancker, New York City ; Librarian, Otto Leis, Newark, N. J. Meetings : Monthly.

WHAT NEW YORK VETERINARIANS WANT.

The placing of the control and eradication of bovine tuberculosis in the hands of the veterinarians.

To know why nearly eight hundred devotees of this special science are still unable to have its own work directed by veterinarians ?

Why so many municipal and district Boards of Health are without a veterinary representative ?

To know why all the work in the State Legislative halls is placed on the shoulders of a few self-sacrificing members of the profession ?

A legislative organization in 1898 comprised of an active member of the profession in every county of the State.

A keener interest in the work of the State veterinary organization by the members of the profession in Greater New York.

More fraternal spirit that will unite in a common determination to place its best men in the highest places.

A keener interest in their alma mater by the alumni of the Empire State.

A reduction in the preliminary education of veterinary students from forty-eight counts.

Rank in all the military bodies of the State.

Amalgamation of the veterinary colleges of New York City.

A veterinary college maintained in New York City where such great clinical material is to be obtained.

Some of her wealthy people to take a keener interest in veterinary education and promote the work in this direction by the endowment of veterinary chairs.

More attention to the needs of the colleges by their boards of trustees.

More county veterinary organizations.

More of their number to take a keener interest in veterinary journalism as contributors.

More liberal knowledge among laymen of the scope of the veterinarian's education.

A better conception of the responsibilities of veterinarians by those who employ them.

A higher standard of ethical relations, a closer fraternal spirit among veterinarians.

WHAT A NEW YORK HOUSE HAS DONE.

THE centre of veterinary publications in America has been located for nearly twenty years in New York City, and the veterinary profession owe much to the liberality of the well-known publishing-house of William R. Jenkins. At all times this house has stood ready to add to the veterinary literature of our country all worthy offerings for the better education of our members. It still leads in this special publication field, and during the past twelve months has been unusually active in bringing forth a number of books of special merit and importance. Every veterinary publication of the world is to be obtained through this firm, and it is a distributing centre of great importance to the welfare and convenience of our votaries. We desire to make this public acknowledgment of our indebtedness as a profession to the generosity that has marked the career of the firm of William R. Jenkins and congratulate them on the excellent books they have brought forth so recently.

The subject of horseshoeing, of so much daily practical importance to the veterinarian, has recently been specially favored in the addition of no less than three worthy books on this all-important subject. Two of these have been placed at our command by this well-known firm. The *Art of Horseshoeing*, a manual for farriers, by William Hunting, F.R.C.V.S. A book of one hundred and twenty-six pages, with nearly one hundred illustrations. While a book primarily intended for the farrier, horseowner, and student of the art of shoeing, it is a very readable book for the advanced veterinarian, and presents in an interesting manner, in a series of twelve chapters, the form and action of the foot; preparation of foot for shoeing; foals and unshod feet; form and manufacture of shoes; selection of a shoe; fitting and application of shoes; on roughing; injuries resulting from shoeing; shoeing bad

feet; leather and rubber pads; shoeing competitions. While, perhaps, no subject affords so wide a variance of opinion, and many will differ strongly with the author on many points, still few will read the book without feeling that it was time well spent, and that a better knowledge of this important subject had been obtained.

More complete and extended in all directions is *A Handbook of Horseshoeing*, with introductory chapters on the anatomy and physiology of the horse's foot, by John A. W. Dollar, M.R.C.V.S., with the collaboration of Albert Wheatly, F.R.C.V.S. The author has in its preparation consulted the writings of almost every one who has anything in print on this subject, and thus brought to his contribution the best thoughts on horseshoeing the world over. Part I. covers the structure and functions of the foot, and this is complete in every detail. In Part II., the horse's foot in relation to shoeing, every form and type of shoe, every principle sought to be followed, every type and special-purpose horse, and the many specially designed shoes for them in favor at home and abroad, are dealt with; the various lesions of the foot due to or to be remedied by shoeing are most thoroughly treated, and a volume of information brought to the subject that has not been attempted before by any English writer. The shoeing of oxen is added, with a chapter on the structure and functions of the ox's foot; also an appendix covering farriers' teaching-schools and shoeing competitions. It is a book approaching nearly five hundred pages, with over four hundred illustrations, and contains the most complete collection of illustrations of the various kinds and forms of shoes ever published. It is a book that will best be appreciated by those who will give time and careful study to its contents.

Through this same house, Prof. L. H. Freidburg, of the American Veterinary College, has presented a translation of Prof. Rudolph Kobert's *Practical Toxicology*, from the third German edition. This book is one of unusual merit, and student, veterinarian, and physician alike will appreciate its merits and value. Its tables, so graphically arranged, so ready of consultation, and so complete in advice, will prove invaluable and many times give instant and inestimable aid in those sudden emergency cases where poisoning is suspected and when one wants the most concise and complete assistance to be of avail. Its appreciation to the extent of a third edition in German within a few years is a fitting testimonial of its merits, and every English speaking and reading veterinarian will

be thankful many times to Prof. Freidburg for his excellent translation. It is a book of more than two hundred pages, with a very complete alphabetical index, printed on excellent paper in clear, large-faced type.

W. H. Dalrymple, M.R.C.V.S., in presenting his compend on *Veterinary Obstetrics* gratefully dedicates the same to Prof. A. Liautard, of the American Veterinary College, as a token of appreciation of his labors in America for the veterinary profession. This book, of one hundred and sixty-two pages, with fifty-one illustrations, intended especially for student-life and a reference-book for the busy practitioner, will be found to fill a very acceptable place without in any way detracting from the more extended works at our command on this subject. Its convenient arrangement in chapters covering the various aspects of this subject adds to its value as a ready reference-book. The author's experience as a teacher in agricultural colleges has suggested its presentation typographically in an attractive form, and it will no doubt contribute very much to the more successful study of this subject in every school where veterinary obstetrics is taught.

Breeding Race-horses by the Figure System, compiled by the late C. Bruce Lowe and edited by William Allison, is one of those interesting contributions to the study of the progress of breeding, that, no matter how much one may differ with the deductions and views of the author, nevertheless has an interest and attraction of no little merit to every student of the genealogy of race-horses and the potency of certain animals in the transmission of certain qualities and power, the chief desiderata in the possession and pleasure of ownership of such animals. To make this more readily understood the author groups the great racing progenitors of the thoroughbred family, and numbers them in the relative estimate of their achievements, and thus follows every great horse and places him by numbers in the class his powers merit, thus more readily showing to what lines such animals owed their racing propensities. Why this prepotent power, and in what way it is transmitted, forms an interesting chapter of deductions, and can be read with profit by every horse-lover and admirer.

It is rare to note that one firm contributes so much to the betterment and progress of a vocation in so short a period of time as has been presented by this well-known firm, and specially so when the work of the veterinarian has been so much curtailed in its chief direction during the past two years; but it is fitting to note at this time the confidence thus expressed and the suggestion it carries

that, on the whole, the veterinarian's education has not been broad enough on certain lines, and his greatest drawback has been the lack of proper text-books for his scientific advancement. We believe these contributions will be appreciated to such an extent as to give encouragement toward the production of others that will fill equally demanded needs of the veterinarian.

CONTROL WORK.

Indiana. Dr. T. B. Pote, food-inspector of Terre Haute, in the report of the city board of health, receives the warm praise of the board for the very careful manner in which he has performed his duties. Some 19,523 cattle, hogs, sheep, and calves killed for food purposes were inspected. Sixteen cattle and four calves were condemned, and 1369 pounds of meat were condemned. Sixty-five visits were made to dairy farms for inspection purposes. One hundred and seven samples of milk were taken and tested. Preservalin was found in these samples; some twenty-six dairy animals were condemned for tuberculosis. Practically, all the slaughtering of animals for food is done at one abattoir, and this affords more ready inspection and better control of meat-products in their preparation and sale.

Missouri. Benton County has three farms under State quarantine. The horses, three of which have died, are suffering with mange, or Texas itch, supposed to have been introduced through a pony purchased at Kansas City.

Minnesota. The veterinary department of the State Board of Health, under Dr. Reynolds, is coöperating with the Bureau of Animal Industry in a way that is proving quite satisfactory. Government inspectors are given authority as representatives of the State Board of Health. In this way they have authority not only over interstate and export traffic, but also with matters that have to do with the State traffic. Parties dealing in diseased animals or handling carcasses unfit for food-purposes cannot escape by claiming that they are intended for sale within the State, or that they are offered only for interstate trade or export. Dr. Reynolds advises other State Boards and State veterinarians, who have not tried this plan, to do so.

EDITORIAL.

OUR EMPIRE STATE EDITION.

WE present with this number our good wishes to the veterinarians of the Empire State. Her devotees of the profession have ever been among those who have given generous support to veterinary journalism, and her record in college, association, education, and publication work has won for her the warm appreciation of the entire profession. To her eight hundred devotees the JOURNAL extends its best wishes and greetings.

WILL NEW YORK LEAD?

THE time is opportune, the situation is ripe for a strong, united, and aggressive movement for recognition with rank of our army veterinarians. Some of those who have given many hours of thoughtful work to this movement in the past are now resident in the Empire State. The National Guard of the State has some of our best veterinarians in its ranks. Higher education has well fitted the graduates of the colleges of this State for these positions, some of which are now held by her sons; and would it not be fitting for the veterinary profession, the colleges, the associations, and every associated interest to enter at once upon the work necessary to accomplish this great end. *Will New York lead?*

A CENTRE OF VETERINARY EDUCATION.

THE Empire State dates the organization of one of the earliest and most successful veterinary colleges in America. This State has brought forth the largest number of graduates in veterinary science of any of the States. The progress of veterinary science in all its avenues of usefulness and the promotion of public welfare has been largely directed by graduates of her colleges. Veterinary sanitary work all over the land has felt the kindly influences of those who were graduated within her borders. To-day her position as a leading centre stands on very uncertain ground. Higher veterinary education within her border seems to have moved in recent years along uncertain and unwise lines, and they have brought some of her schools to face a condition that threatens

their death, if not by a rapid process, by a decline in their value and usefulness that will make the more sudden demise much to be desired. Without support, without means, without such necessary aid in such work, there must naturally follow a decline in growth and development that will take to other fields the centre of veterinary education, and her rank will soon be wiped away. The reduction of the Board of Regents' requirements, now promised, will probably aid the schools in tiding over the situation of the past two years; but the question forces itself strongly upon all who have earnestly studied the situation: Is there room for two veterinary schools in New York City? All will unite in saying that for valuable clinical material it holds the highest place in our land, and this should not be lost sight of in the interests of those who are to fill the future ranks of the profession. The able teachers of these two schools could be united to form one of the best institutions of learning in the land, and were it associated with Columbia or some other university, it would give it a solid foundation, and this centre of veterinary education would be preserved for years to come. Who will move first in this much-to-be-desired end?

MARRIAGES.

Dr. George P. Biggs, Secretary of the New York College of Veterinary Surgeons, and professor of physiology, was married April 14th, at the Fifth Avenue Presbyterian Church, New York City, to Miss Florence Browning, of New York. Dr. Herman M. Biggs was best man. The bride was attended by six bridesmaids and a maid of honor.

Miss Willard, daughter of W. A. Willard, who for a number of years has been in the employ of the Bureau of Animal Industry, was married in the First Presbyterian Church of Passaic, to Edward W. Berry, manager of the *Passaic News*. The wedding was a very elaborate affair; every seat in the church was occupied.

The action of the members of the Veterinary Medical Society of students of the University of Pennsylvania, in tendering their services in connection with the cavalry service of the United States for the war with Spain, was acknowledged on behalf of the President with appreciation of the spirit of the services tendered.

REVIEW.

THE HORSE IN MOTION. Drawings by WILLIAM HAHN. By DR. J. D. B. STILLMAN. Preface by the late LELAND STANFORD. A book of nine beautifully colored plates, ninety to one hundred pages of heliotype cuts, one hundred pages of text. Printed upon a heavy, rich, plate paper, nine by twelve inches; bound in cloth, with gilt top. Published originally as a subscription book at ten dollars. The remaining copies (the plates having been destroyed) are now selling at five dollars. Ticknor & Co. 211 Tremont St., Boston, Mass.

This work and the field it represents has been, since the issue of this excellent work, one of the most interesting, instructive, and important lines of investigation, and has marked an era of advance of great value. Instantaneous photography has revealed the gaits of horses and animals and made possible many attainments in the study of locomotion that have added an untold measure of results in dealing with the advances made and attained in breeding centres. The late Mr. Leland Stanford found this a field of the greatest promise in reaching ends in breeding, and this work, published largely under his fostering direction, has done much to extend investigation along these lines. It is a magnificent book, of the greatest interest to veterinarians, and should be one of those books owned by every member of the profession, for consultation and interesting reading at odd moments of leisure.

PERSONALS.

Dr. M. P. Ravenel was a lecturer at the Farmers' Institute at Huntingdon, Pa., in March.

Dr. A. S. Wheeler, of Biltmore, N. C., has entered the Orthopedic Hospital of Philadelphia for a course of treatment.

Dr. M. J. Collins, of Myerstown, Pa., was on the sick list early in March.

Dr. D. E. Salmon, of the Bureau of Animal Industry, made a trip to Texas early in March to investigate the method of dipping cattle for extermination of ticks.

Dr. Louis A. Klein, Veterinary Department, University of Pennsylvania, Class of 1897, who recently accepted the position as veterinarian of Biltmore, Mr. Vanderbilt's estate in North Carolina, has resigned to accept a position as Federal meat-inspector in Chicago. Dr. Klein is succeeded at Biltmore by his classmate, Dr. James Beatty, of Philadelphia.

Dr. John W. Eshleman, of Parkesburg, Pa., has been selected as one of the ground committee of the Gentlemen's Driving Association.

Veterinarian E. C. Porter, of Newcastle, Lawrence County, Pa., won the Republican nomination for coroner of that county in March. Three M.D.'s were also in the race. All the candidates were raised there, except Dr. Porter, and, consequently, he had not only the candidates, but all their relatives to fight. Dr. E. E. Bittles, of New Castle, was a strong ally of Dr. Porter in the fight.

Dr. J. L. Tyler, of Chebanse, Ill., has abandoned the practice of veterinary medicine, and will locate at Jackson, Miss., where he will engage in the practice of human medicine.

Dr. Lloyd Zaner, of Stillwater, Pa., was a visitor to Philadelphia and the JOURNAL office in April.

Dr. Charles H. Canfield, graduate of the Ohio State University, and Dr. H. B. Chaney, graduate of the Ontario Veterinary College, both of Akron, Ohio, have been appointed meat-inspectors at Kansas City, Mo.

Dr. H. M. Burgess, of Pawtucket, R. I., has accepted an appointment in the Bureau of Animal Industry inspection-service, and assigned for duty at St. Joseph, Mo.

Dr. Charles T. Goentner, of Bryn Mawr, Pa., received a painful injury in April by the passage of a chisel through his hand.

Dr. J. C. McNeil, of Pittsburg, Pa., was confined to his bed for a week in April with a severe attack of lumbago.

Dr. A. W. Bitting, of Lafayette, Ind., was a recent contributor to the Jersey *Bulletin*, taking issue with Editor Jenkins upon his position relative to the great need of sanitary measures in the dairies.

Dr. H. J. McClellan, of Bryn Mawr, Pa., received the degree of M.D. at the Baltimore University School of Medicine, on April 17th. Dr. McClellan filled the rôle of President of his Class, and graduated at the American Veterinary College, Class of 1893.

Dr. Leroy M. Land, of Lexington, Ky., graduate of the Veterinary Department of the University of Pennsylvania, after a sojourn of two years in Germany, spent in advanced studies and laboratory work, has returned home, and will at once enter upon practice in the "Blue Grass State."

Dean Leonard Pearson, of the Veterinary Department of the University of Pennsylvania, was a guest of Vice-Provost Fullerton of that institution at a farewell dinner given prior to the latter's leave of absence for a year in Europe.

Dr. Joseph M. Good, of Chattanooga, Tenn., had the degree of M.D. conferred upon him by the Chattanooga Medical College on March 22d.

Dr. M. H. Reynolds, of Minnesota, addressed a meeting of farmers at Albert Lea on March 29th, on the "State-control of Hog-cholera," and will spend considerable time with the Minnesota State Farmers' Institute in the same work during the summer.

The Minnesota plan of having a field-veterinarian in the veterinary Department of the State Board of Health is proving very satisfactory. Dr. S. D. Brimhall, who has done this work for the Minnesota Board since the adoption of the plan, is almost constantly on the road and is of great assistance to local health-officers and owners of live-stock.

Dr. R. P. Steddom, formerly of Kansas City, has been transferred from that point to take charge of the quarantine service at Sacramento, Cal.

Dr. G. A. Johnson, of the Bureau of Animal Industry, has been transferred from Kansas City, Mo., to Sioux City, Ia.

Dr. James W. Sallade, of Pottsville, Pa., spent a week, in April, around Washington, Norfolk, and Hampton Roads.

Dr. E. P. Schaffter, formerly of Kansas City, is now located at the Cleveland (O.) department of the inspection service of the Bureau of Animal Industry.

Drs. Leonard Pearson, State Veterinarian, and M. P. Ravenel, Bacteriologist of the State Live-stock Sanitary Board, have been elected directors of the Society for the Suppression of Tuberculosis in Pennsylvania.

John J. Repp, of the Class of '98, veterinary department, represented the school at the arbor-day exercises of the University of Pennsylvania, in April.

Among those at the dispersal sale of the Cloverdale breeding-farm were to be noted Drs. H. D. Gill, of New York; H. P. Eves, of Wilmington, Del.; S. D. Larzelere, Jenkintown; C. H. Magill, Charles Williams, and Leonard Pearson, of Philadelphia; H. P. Turner, of Lahaska; J. Z. Hillegass, of Red Hill; and J. H. Oyler, of Harrisburg. Mr. Fasig said this was one of the best sales ever held in this country.

Dr. E. Schirmer, of Asheville, N. C., has removed to Washington, D. C.

Dr. W. G. Benner, of Doylestown, Pa., has proffered his services to Governor Hastings as veterinarian to a company of cavalry should his services be desired.

Dr. A. W. Clement, of Baltimore, will act as veterinarian to the annual horse-show of the Elk Ridge Fox-hunting Club, May 19th to 21st, inclusive.

Dr. J. A. Mowbray, of Oshawa, Ontario, was appointed Government inspector for South Ontario, in April.

Dr. W. W. Martin, Jr., of Philadelphia, has enlisted for two years and gone to the field with "Battery A," of Pennsylvania. Dr. Martin will fill the post of veterinarian to this company of artillery.

The Honorable Secretary of Agriculture has detailed Dr. C. W. Stiles, Zoölogist of the Bureau of Animal Industry, as Agricultural and Scientific Attaché to the United States Embassy at Berlin, Germany. Dr. Stiles leaves Washington immediately to assume his new duties. He still retains his official connection with the Bureau, and will eventually return to continue his investigations upon animal parasites.

Dr. E. C. Porter, of New Castle, Pa., is a candidate for coroner in his district.

Dr. Maurice O'Connell, a member of the Massachusetts Cattle Commission, succeeded Dr. J. J. Monahan as City Veterinarian of Holyoke, Mass., on March 10th. The position carries with it a salary of six hundred dollars per year. Dr. O'Connell has for several years had full charge of the inspection, control, and eradication of glanders in the Bay State.

Dr. W. H. Ridge, of Trevese, Pa., bought "Orphant May," out of "Gypsy May," by "Forrest Wilkes," three years old, at McFarland's sale; colt owned by Col. Edward Morrell.

Dr. U. G. Houck is now in charge of the government meat-inspection service at Sioux City, Ia.

Dr. R. A. Hasbrouck, of Passaic, N. J., buried a son, twenty-four years of age, early in March, from tetanus following a runaway accident.

Dr. W. B. E. Miller, of Garfield, N. J., was a victim of rheumatism in February, and was confined to his bed for several weeks.

Dr. T. Earle Budd, of Woodbury, N. J., has been nominated for Council in that town.

Dr. H. P. Eves, of Wilmington, Del., has been on the sick list for the past month.

Dr. D. Fisher, of Grandin, North Dakota, combines the purchase and sale of horses with his practice.

Dr. H. W. Stedman, formerly of Toronto, Can., has located at Springfield, Mass.

Dr. Harry W. Turner, of Lahaska, Pa., was a visitor to the JOURNAL office recently.

Dr. E. L. Kellner sings in the choir of the Church of the Epiphany, Philadelphia.

Dr. William Dougherty, of Baltimore, Md., has become the proprietor of the Hotel Studio of the "Oriole City," where he will greet as host his many friends.

Dr. L. H. Howard, of Boston, suffered from a severe attack of conjunctivitis in March.

Drs. John T. Unertl and R. A. Higgins, of Wisconsin, are to be tried by their State association for violation of the code of ethics in connecting themselves with a livestock insurance company granting free treatment to owners of stock so insured.

The Directors of the Philadelphia Horse-Show Association have selected the following veterinarians to serve at the open-air show to be held during the last week in May: Drs. A. W. Clement, Baltimore, Md.; C. J. Marshall, Philadelphia, Pa., and W. H. Ridge, Trevese, Pa.

Dr. John A. Myers, of West Virginia, was a contributor to the February number of the *Southern Farm*.

SOCIETY PROCEEDINGS.

U. S. V. M. A.

THE opening of the discussion on meat-inspection has been arranged as follows :

"Reasons for Meat-inspection," Dr. C. A. Cary.

"Methods of Educating the Public as to the Importance of Meat-inspection," Dr. W. Horace Hoskins.

"The Necessity of Consolidation of Municipal Slaughter-houses into Large Abattoirs under Municipal Control," Dr. Leonard Pearson.

"Slaughter-house Inspection," Dr. Thomas J. Turner.

"Retail Market Inspection," Dr. Charles W. Heitzman.

In connection with the discussion there will be displayed a large variety of pathological conditions and diseased tissues in demonstration of diseases found in slaughter-houses and market inspection.

This subject ought to prove of the greatest importance and interest to veterinarians in all our cities and towns, and aid in securing legislation needed for this much-to-be-desired purpose among our people.

The joint meetings of the Nebraska and Iowa associations in connection with the U. S. V. M. A. will be of a social character and add to the fraternal spirit of the occasion.

The Nebraska Association proposes to supply subjects for a number of operations during the sessions. These to be performed from 8 to 10 A.M., by leading surgeons from among the members. It is to be hoped that volunteers will be prompt in responding to this call, and that such operations as arytectomy, oöphorectomy in the mare, castration of cryptorchids, median neurectomy, and the several operations for stringhalt may be performed. A suitable place has been arranged for close to the assembly rooms of the convention. Papers on surgical subjects are desired, and if these can be demonstrated clinically it is thought that much benefit may accrue to those in attendance.

Papers are already announced from Drs. Law, Cary, T. S. Butler, R. R. Bell, and A. J. Anderson.

VETERINARY MEDICAL ASSOCIATION OF THE DISTRICT
OF COLUMBIA.

THE regular bimonthly meeting (the seventeenth) was called to order at Elks' Hall, 1006 E Street, N. W., on January 29th, by the Vice-President, Dr. Buckingham. Members present: Drs. French, Robinson (C. B.), Buckingham, Barton, Walmer, Turner, Salmon, C. F. Hadfield, R. H. Hadfield, and Yetton.

Unfinished business was the report of the Legislative Committee on the bill introduced in Congress to regulate the practice of veterinary medicine in the District of Columbia. The committee reported that it had drawn a suitable bill, and that it was before the District Committee at that time.

Drs. Barton and Walmer were appointed a committee to draw up suitable resolutions in memory of our late fellow-member, Dr. Adamson, who was recently killed while in practice at Minneapolis.

A paper was read by the Secretary regarding the workings of the Newark (N. J.) Milk Company.

Dr. C. B. Robinson made an interesting report on his inspection of the cattle and dairy of the Pasteur Milk Company, a company in which the District Medical Society is largely interested.

Dr. Salmon gave a very interesting and profitable address on the meat-inspection methods of the Agricultural Department, following which was a general discussion on the subject of meat-inspection.

Dr. C. B. Robinson then reported a disease discovered and named by him as "sonus neurosis." This disease is found only among horses serving in the fire department, and has been under observation for several years. During the last two weeks four cases were observed. The symptoms are manifested upon the ringing of the gong in the station or hospital, or even by a pistol-crack, or the sudden slamming of a door. Immediately following any of these noises the animal gets excited, and a spasmodic contraction of the muscles of the leg will be observed, either fore- or hind-leg may be equally affected. The leg will frequently be elevated to an angle of forty-five degrees and held there some time. Ringing the gong continuously increases the symptoms. The lameness does not persist, as the animal warms out of it. When cases are taken to the hospital they usually resolve in a few days, but frequently re-attacks occur and several horses have been transferred to other work than answering fire-alarms, owing to its persistency. At other work these symptoms are not observed. Dr. Robinson's theory is that of auditory irritation.

The President appointed Drs. French and Walmer to prepare papers for the next meeting.

Upon motion of Dr. Salmon, the meeting adjourned.

The regular bimonthly meeting (the eighteenth) was called to order at Elks' Hall, March 26, 1898, by the President, Dr. Acheson. The following members responded to the roll-call: Drs. Acheson, Barton, Buckingham, R. A. Hadfield, Pearson, C. B. Robinson, Turner, and Yetton. Visitor: Dr. Robertson, veterinarian, U. S. Army.

The Legislative Committee, through its chairman, Dr. Buckingham, reported its inability to get a hearing before the District Committees of Congress.

The Committee on Resolutions appointed to draw up fitting resolutions relative to our recent loss by death of Dr. John H. Adamson, reported the following resolutions:

WHEREAS, It has pleased Almighty God to remove from his earthly labor our fellow-member, Dr. John H. Adamson; and

WHEREAS, This Association deeply grieves the loss of Dr. Adamson, who by his genial disposition, manly traits, and high professional attainments, has endeared himself to all of us; be it therefore

Resolved, That a copy of these resolutions be spread on the minutes of this Association and a copy be forwarded to each of the veterinary journals and to the family of our deceased member.

The election of officers to serve for the coming year resulted in a re-elec-

tion of the present officers: President, Dr. Acheson; Vice-President, Dr. Buckingham; Secretary and Treasurer, Dr. Turner; Trustee for three years, Dr. C. B. Robinson; Trustee for two years, Dr. Pearson; Trustee for one year, Dr. Walmer.

The papers which were to have been read at this meeting by Drs. Walmer and French were continued over to the next meeting.

Dr. C. B. Robinson reported another case of "sonus neurosis" which has been under the observation of several of our members. In speaking further about this disease, Dr. Robinson stated that during his connection with the fire department of the District, covering the last fifteen years, he had seen more than fifty cases of this disease, but had never reported them, supposing the disease had been observed abroad; but after a recent search of veterinary literature on the subject he had failed to see it mentioned, therefore he had taken the liberty of naming and describing this disease. The disease is spoken of as "gong-lameness" in the fire department.

Drs. Walmer and Robinson made a report on some tuberculous herds recently tested with tuberculin. In a herd of forty-eight cows, three reacted. Two of these cows were in fair condition, large milkers. Reaction reached 108° and 107.6°. Each received 2 c.c. of tuberculin, and in both cases the milk-secretion was permanently stopped, and each cow had been milking three and one-half gallons a day. Postmortem alterations were almost microscopic in size, and carcasses passed for meat. A "bulling cow" in this herd, whose normal temperature was 102° F., went to 103° F. in fifteen hours. She was killed by request of the owner, but no diseased condition was found. Another cow in this herd had a large ulcerating tumor on the jaw, supposed to be actinomycotic in origin. This cow did not react. The tumor was examined by Dr. Lamb, of the Army Medical Museum, and proved to be tuberculous.

In another herd of thirty-one cows, fifteen reacted and were condemned for dairy purposes. The owner endeavored to have them slaughtered in the District of Columbia, but failed. He then shipped them to Alexandria, Va., but the efficient State Veterinarian, Dr. Niles, was notified, and he refused to let them be slaughtered for food purposes. They were then shipped to Baltimore, and Dr. Clement was notified, and he promptly turned them down. The owner then (March 8th) shipped these fifteen cows to Wilmington, Del., and they were there slaughtered and sold, since the State was without any official veterinarian who could be notified. This illustrates the value of official veterinarians acting in harmony and the loss a State bears without having one.

The recent Farmers' Institute held at Alexandria, Va., was brought up in this discussion, and the action of Major Alvord, Chief of the Dairy Division, Bureau of Animal Industry, was severely criticised, for denouncing the use of tuberculin in testing dairy-herds.

The question of passing cows for dairy purposes in which but three of the teats were secreting, was warmly discussed by those present. On most farms the owners claimed to use the milk of "three-teaters" for family purposes only. Dr. Robinson found pus in most of these non-secreting quarters. Where quarters were atrophied and clear of nodules and pus, he passed the cows for dairy purposes.

In this discussion the recent decisions of the attorney for the District was severely condemned, in which he held that cream was not milk, and that

dairymen who have had their licenses revoked for keeping unsanitary dairies could ship cream into the District without having such license.

Meeting adjourned.

J. P. TURNER,
Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE regular monthly meeting of the Association was called to order at the Academy of Medicine on March 2, 8.45 P.M., the President, Dr. Huidekoper, in the chair. The following members responded to roll-call: Drs. Ackerman, Burns, Bretherton, Bell, C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Delaney, Dair, Ellis, Foy, Gill, Grenside, Huidekoper, Hanson, MacKellar, Neher, O'Shea, and Ryder. The minutes of the previous meeting were read and approved.

Reports of Committees: Board of Censors, H. D. Gill, chairman, reported no business in hand. Judiciary, Dr. Ryder, as chairman, *pro tem.*, reported in Dr. O'Shea's absence. Committee on Ways and Means, Dr. Bell, chairman, reported progress. Moved and second that the reports of the various committees be accepted; carried.

Reading of papers: Dr. Gill took the initiative by reading a paper on "The Relation of the Veterinarian to the Board of Health as Meat- and Milk-inspectors."¹ Discussion followed by Dr. Austin Peters, of Boston; Dr. W. Horace Hoskins, of Philadelphia; Dr. Leonard Pearson, Philadelphia; Dr. R. W. Hickman, U. S. B. A. I., of New York, and Dr. W. Herbert Lowe, of Paterson, N. J., State Veterinarian of New Jersey and late Veterinary Inspector to the Port of New York. The discussion was closed by the essayist.

Under the head of new business it was moved and seconded, that a committee of three be appointed to draw up resolutions on the death of Theodore Birdsall; carried. The following resolution was offered by Dr. Bell:

Resolved, That a committee be appointed to draw up resolutions expressive of the feelings of this meeting in relation to the importance of meat- and milk-inspection to the health of the general public, and the necessity for the appointment of veterinarians by boards of health as such inspectors.

Moved by Dr. O'Shea, that a vote of thanks be extended to Dr. Gill for his paper, and to Drs. Peters, Hoskins, Pearson, Hickman, and Lowe for the discussion. Seconded; carried.

Moved and seconded that the meeting adjourn; carried.

THE regular monthly meeting was called to order in Room 37, New York Academy of Medicine, at 8.30 P.M., April 6th, Dr. Huidekoper presiding. On roll-call the following members responded: Drs. Bretherton, C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Dickson, Delaney, Dair, Ellis, Farley, Gill, Huidekoper, Lamkin, Machan, MacKellar, Murphy, Neher, O'Shea, and Ryder (18). As visitors: Drs. L. Nicolas, Charles Hall, Olof Schwarzkopf, C. E. Clayton, M. Kenny, J. F. DeVine, J. William Fink, E. F. Sanford, Charles S. Atchison, James W. Walker, B. Günther, August D. Moeller, George P. Biggs, M.D., A. W. Clement.

Report of Judiciary Committee: Dr. O'Shea, Chairman, reported that

¹ See page 295.

the bill introduced to allow Charles McCormick, of the City and County of Albany, to practise, although it had passed the Assembly, was killed in the Senate, and that the bill exempting veterinarians from jury-duty in New York and Kings Counties had passed both Houses and was in the hands of the Governor, awaiting his signature to become a law. Moved and seconded, that the report be accepted as read; carried.

Ways and Means Committee: Dr. Ryder, Chairman, *pro tem.*, reported for this committee, that at the May meeting Dr. J. S. Cattanaach will read a paper on "Economy in the Practice of Veterinary Medicine," and that Dr. J. S. Lamkin will read a paper on "Parturient Apoplexy." Moved and seconded that the report be accepted and placed on file; carried.

Testimonial Committee: In behalf of Dr. O'Shea, Dr. J. S. Cattanaach, Chairman, reported that he had done considerable work, but required more men on the committee, and requested that two more be appointed. This request was granted, and the President appointed to act with that committee Drs. Delaney and Grenside.

Papers: Dr. Huidekoper delivered a most interesting and instructive discourse on "Navicular Disease." The discussion which followed was led by Dr. A. W. Clement, of Baltimore, who mentioned as a treatment for this condition what he termed "Surface Firing" with the thermo-cautery. This treatment, in which the skin is *not* punctured, is repeated daily for a time, then every second day, with good results. Drs. Neher, Schwarzkopf, and Clayton participated in the discussion that followed. Moved and seconded that the discussion close; carried.

Moved and seconded that a vote of thanks be extended to the essayist for his most excellent address; carried.

Dr. Ryder next read a paper entitled "College and State Examinations." Dr. Biggs led in the discussion of this paper, and was followed by Dr. A. W. Clement, member of the State Board of Examiners of Maryland. Among those who discussed this important subject were Drs. Gill, Moeller, DeVine, and Huidekoper. Discussion was closed by Dr. Ryder. Moved and seconded that a vote of thanks be extended to Dr. Ryder; carried.

A communication from Dr. Roscoe R. Bell, tendering his resignation as Chairman of the Committee on Ways and Means of the Society, was read by the Secretary. Moved and seconded that this resignation be referred to the Board of Censors to report on at the next meeting; carried.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

IOWA VETERINARY SOCIETY.

ANENT the annual meeting at Des Moines, Iowa, in January, between thirty and forty members responded to roll-call. The social and political standing of the profession found much expression in the President's address, which was fruitful in provoking earnest discussion.

The Association added twelve new members to its strength.

State Fair delegates mingled with the Association members in their evening session.

Dr. A. T. Peters, of Lincoln, Nebraska, addressed the Association on "Immunity," and made a strong plea for a larger attendance at Omaha.

State Veterinarian Gibson aroused much interest in State work through his report.

Many of the members attended the banquet of the State Fair Association.

Actinomycosis and immunity were strong in discussion on the second day.

The veterinary journals came in for a roasting because they would not furnish reprints without cost in exchange for a full report of the meeting.

Members are not to copyright their papers, but the latter and all reports are to become the property of the Association.

Dr. Parslow's paper on "Reflex Paralysis" proved to be an excellent presentation of the subject, and brought forth a profitable discussion.

Dairy inspection found many interested listeners, and its importance was fully presented by Dr. J. W. Griffith.

Senator Emmett presented the subject of proposed legislation to prevent the admission of dairy cattle into Iowa afflicted with tuberculosis. Also to better control the diseases of swine.

No effort will be made this session to secure legislation regulating the practice of veterinary science.

Governor Shaw's inauguration attracted the members on the afternoon of the second day.

The weight of opinion seemed in favor of removal of the clitoris in place of ovariectomy for viciousness in mares, thus preventing their loss for breeding purposes.

Some of the members came in for a round scoring in not practising what they preach relative to the personal use only of milk from tested cows free from tuberculosis.

The next meeting will be in connection with the Nebraska State Association at the convening of the U. S. V. M. A. in September.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

THE annual meeting was held at Madison, in the rooms of the State Agricultural Society, on Friday, February 25, 1898. The meeting was called to order at 2 o'clock P.M., by the President, Dr. L. A. Wright. Roll-call: Drs. Clark, Leech, Schmitt, and Wright. Visitors: Drs. Clute, Heer, Beattie, and Smith.

The Secretary's report was read and adopted. The Secretary reported correspondence with Dr. J. P. Laws, the Treasurer, who had removed from the State. The Secretary was unable to find the Treasurer's books to investigate the same. The report of the Secretary in regard to the Treasurer's accounts was adopted subject to inspection.

Dr. Clark presented the application of Dr. J. P. Laws for honorary membership. On motion, action on the application was postponed until the Treasurer's accounts were investigated.

Dr. G. Ed. Leech presented an application for honorary membership for Dr. C. H. Ormond, of Milwaukee. It was moved by Dr. Clark, and seconded by Dr. Schmitt, that the application be granted; carried.

Dr. G. Ed. Leech reported that two members of the Society, Drs. R. A. Higgins and John T. Unertl, were holding offices, one as first vice-president, and the other as treasurer of a live-stock insurance company, and were giving the said company free services. Dr. Leech gave a description of the plan of operation of said company and a detailed report of the busi-

ness transacted by the company during the past year. It was moved and seconded that Drs. John T. Unertl and R. A. Higgins be requested by the Secretary to show cause on or before the next regular meeting in August why they should not be expelled from membership for violation of Section 7 of the Code of Ethics.

The application for membership of Dr. R. S. Heer, Plateville, and Dr. H. P. Clute, Marinette, were presented. In the absence of the Censors, the President appointed Drs. Schmitt, Leech, and Clark to report on the applications. The committee reported favorably on the applications. The President cast a deciding vote, and they were declared elected to membership.

Dr. Leech made a report in regard to the veterinary bill before the last session of the Legislature. After discussion, the report was accepted, and it was decided to present practically the same bill at the next session of the Legislature.

The President gave a short and instructive talk on the duties and future prospects of the veterinarian.

Dr. G. Ed. Leech read a very interesting paper on "Azoturia in the Dog," and reported several cases. Discussed by Drs. Clark, Beattie, Heer, Wright, and Schmitt.

Dr. Wright reported an obstinate case of "Sweeny." Several interesting cases were reported and discussed.

The Society then proceeded to the election of officers for the ensuing year, which resulted as follows: President, Dr. L. A. Wright, Columbus; Vice-President, Dr. J. F. Roub, Monroe; Secretary, Dr. W. G. Clark, Marinette; Treasurer, Dr. Charles Schmitt, Dodgeville; Censors, Drs. R. S. Heer, Plateville; G. Ed. Leech, Milwaukee; and H. P. Clute, Marinette.

It was decided to hold the semi-annual meeting at Columbus in August, subject to the call of the Secretary.

On motion, the Society adjourned.

W. G. CLARK, M.D.C.,
Secretary.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

THE fifteenth regular meeting was held in the lecture-hall of the Kansas City Veterinary College on the evening of February 9, 1898. The meeting was called to order by First Vice-President Dr. R. C. Moore. Members present: Drs. S. Stewart, B. F. Kaupp, R. P. Steddom, G. A. Johnson, G. C. Pritchard, E. H. Biart, J. B. Black, R. C. Moore, F. W. Hopkins, J. H. Cock, and W. A. Heck. Visiting members of the profession were Drs. W. R. Cooper, of Kansas City, S. T. Miller, of Shelby, Iowa, and about twenty of the college students.

The first business to come before the Association was relative to members in arrears. Dr. Pritchard moved that all members who have been active members and who have moved too far away to attend the meetings, and have paid up their dues reasonably close, be elected honorary members; seconded and carried. Dr. Stewart moved that all members who are in arrears two years, and who have never paid anything to the Society, be suspended; seconded and carried. It was moved that all members suspended for non-payment of dues may be reinstated on payment of dues to date of suspension; seconded and carried.

It was moved that a committee of three be appointed to draft resolutions

to be sent to the U. S. Senators from Kansas and Missouri, urging the defeat of the antivivisection bill now pending before the Senate. Motion seconded and carried, and the following committee appointed: Drs. S. Stewart, G. C. Pritchard, and G. A. Johnson.

The first paper was by Dr. Pritchard, on "Mechanical Treatment of Lameness." The doctor was of the opinion, ten or twelve years ago, that Robert Bonner's theories of a balanced foot were wild and visionary; but practical experience had forced him to accept them, and is of the opinion that any veterinarian who will give study and thought to the matter in an unbiased manner will be convinced. After giving his theories on cause of spavin, wind-puffs, and navicular disease, and the treatment of same by paring the feet, the paper was open for discussion. Dr. Johnson promptly took issue with the essayist, and a lively discussion followed for nearly an hour. Other members offered suggestions and asked questions until the subject was thoroughly turned over and looked at from many points of view. It was evident that Dr. Pritchard had given this particular subject more earnest study than any other member present.

The next paper, by Dr. E. H. Biart, on "Torsion or Displacement of the Large Colon in Protracted Colic," was very well received. It seemed to be a new idea to most of the veterinarians; consequently but few could discuss it. The doctor was deluged with questions, which he answered very satisfactorily. His method of diagnosis is manual examination per rectum, when, by feeling for the longitudinal bands on the colon, he is able to determine whether there is torsion or a normal position. If normal the band runs parallel with the abdomen. His method of replacement is by simply grasping the organ and by traction and plenty of patience, bodily turn the organ. He gave as his opinion that a large percentage of fatal cases of colic is due to this cause. He had held in the past few months post-mortems on nineteen cases, and found torsion in six of them.

Dr. R. C. Moore gave an interesting talk on the methods of one — Giles, of this city, who is pushing a proprietary remedy with which he claims to cure all the diseases horseflesh is heir to, and interfering seriously with regular veterinary practice. He calls upon the owner of every sick animal of which he can learn, and urges the merits of his lotion, and insists upon his giving it a trial. An analysis of this remedy revealed its composition to be camphor, five grains; sulphuric ether, one and one-eighth drachms, and linseed oil enough to make one ounce. The doctor had prepared some of the lotion and had it on exhibition, and it was impossible to distinguish between this preparation and the original "Giles Lotion." Various means of dealing with this gentleman were discussed, and Dr. Moore concluded to furnish his customers at cost all of this preparation they might wish; and it is his opinion that a bottle such as is sold for one dollar he could compound for a few cents.

Dr. Stewart gave an account of a peculiar disease he calls "Contagious Vulvitis of Cattle." A large herd of heifers originally from near Trinidad, Colorado, was shipped to Kansas City, and sold in small bunches to farmers in various sections, where it seems they all developed the disease, which ran a very rapid course, and in case it was not treated terminated in death in about three weeks. None of the members had seen anything similar, but Dr. Pritchard had seen an affection of the vulva caused by feeding on old straw.

Several members had cases they wished to report, but the lateness of the hour prevented, and a motion to adjourn ended another very profitable meeting.

W. A. HECK,
Secretary.

COMMENCEMENT EXERCISES.

NEW YORK COLLEGE OF VETERINARY SURGEONS.

THE commencement exercises were held on commencement day, April 1st, in College Hall. Fifteen were eligible for the "'98" examinations. Of this number thirteen presented themselves, eight of whom were successful in obtaining the diploma of the school. Five of the class failed, or 38.5 per cent. Those receiving diplomas were Philip Caspian Finn, Brooklyn, N. Y.; William Lawrence Fowler, Banksville, N. Y.; Niran Odell Gilbert, Irvington-on-Hudson, N. Y.; James Mannington Richardson, Tunbridge Wells, England; Arthur Ward Smith, Bloomfield, N. J.; James Edgar Smith, V. S. (Ontario), Webster, N. Y.; Valentine L. Smith, Baldwins, Long Island, N. Y., and William Henry Wheeler, V. S. (Ontario), Stamford, N. Y.

Dr. James Mannington Richardson won the gold medal for the best general examination. Dr. William Henry Wheeler passed the best practical examination, winning a case of instruments. Mr. Francis C. Edmunds, of Glen Cove, Long Island, N. Y., passed the best second-year examination, receiving the Regents' certificate. Mr. Albert Pfefferkorn, New York City, won the silver medal for the best junior examination.

At 8 P.M. members of the board of trustees, faculty, alumni, and graduates assembled at "The Arena," West Thirty-first Street, where the dinner of the Class of '98 was served, and after the greater portion of the menu was disposed of the following toasts were responded to: "New York College of Veterinary Surgeons," Harry D. Gill, V.S.; "Board of Trustees," R. M. Stiver; "Class of '98," Philip C. Finn, V.S.; "The Graduate," Harry D. Gill, V.S.; "The Alumni," James H. Ferster, V.S.; "Lost Opportunities," J. S. Hopkins, M.D.; "Business Methods," Rush Shippen Huidekoper, M.D., V.S.; "The Profession," Edward N. Leavy, D.V.S.; "The Press," W. Horace Hoskins, D.V.S., and "Farewell Greetings," Arthur Ward Smith, V.S. William H. Wheeler, V.S., was toastmaster. Excellent thoughts and advice came from Professors Gill and Huidekoper as to the thorough work done by the graduates and the hopes indulged in of the work they would be expected to accomplish. Mr. Stiver, of the board of trustees, told of the value of education, of good roads, and how the latter kept pace with advanced education and civilization. The press and its influences, the need and value of higher journalism and its progress were referred to by Dr. Hoskins, and he urged the graduates to early make it a duty to record their experiences and observations and prepare them for publicity and use in the journals. Many excellent thoughts flowed from members of the faculty, alumni, graduates, and the Class of '98, and the hour of midnight quickly rolled round amid the pleasure and enjoyments of the occasion.

FIRST GRADUATES FROM THE GRAND RAPIDS VETERINARY COLLEGE.

THE first commencement exercises of the Grand Rapids Veterinary College were held on the evening of March 25, 1898, at the college lecture hall, on Butterworth Avenue. There were six graduates and a large number of their friends were present and a number of the most prominent physicians of the city.

Dr. Dales presided, and Dr. Graves presented the diplomas. In his opening address Dr. Dales said :

Mr. President, Ladies, and Gentlemen : To-night is the inauguration of a new era in the medical history of Grand Rapids. The Grand Rapids Medical College, with its various departments, was organized less than one year ago. If you will glance at the history of medical schools you will find but very few of those most prosperous to-day which started on their career with a larger class of students from the beginning than this school established in our city. The importance of location, the clinical opportunities afforded, and the unusual interest manifested foreshadow for this institution unexpected success. This, the Veterinary Department of the Grand Rapids Medical College, is the first to complete its course of study for the year, and we meet here to-night to confer upon the successful members of this class that which they richly deserve—the degree of D.V.S., and the diploma awarded by this institution, signaling to the world that this the first graduating class of the veterinary department have completed their studies as students of veterinary medicine, and are well worthy of the confidence which I hope may be bestowed upon them by a generous public.

It is our most earnest desire that this institution may ever be an honor to the gentlemen who pass from our midst as graduates, and that you can refer to your alma mater with a feeling of confidence and pride. I assure you this institution will have the interest of its students at heart, and be ever ready to lend a helping hand. The closing of this session brings to mind my own student days and the memorable night on which I received a roll of parchment, for it inspired the thought—all was conquered ; but alas, it was not. This is but the beginning of a lifework, and our student days are never ended, and he who goes forth with the idea all knowledge has been attained is but dreaming, the truth of which he will very soon realize. Knowledge is power, and we should ever strive to attain it. Honesty of purpose and fair dealing with all mankind should be your motto.

The graduates are L. L. Conkey, M. T. Banasiewicz, George Harr, city ; Thomas Bunberry, Niles ; A. H. Swift, Freesoil ; George H. Stevenson, Detroit.

Addresses were given by Major E. C. Watkins, Prof. C. N. Nye, Dr. J. B. Griswold, Rev. Dr. Gardner, Dr. D. M. Greene, Dr. L. E. Best, and L. L. Conkey.

Rewards were offered for the highest standing in examination, and these were awarded to Thomas A. Bunberry, gold medal ; George Harr, apparatus for throwing horses ; A. H. Swift, veterinary dictionary.

The exercises were very interesting and were considered a credit to the institution.

COMMENCEMENT EXERCISES OF THE UNITED STATES
COLLEGE OF VETERINARY SURGEONS.

THE closing exercises of this school took place Thursday afternoon, April 14, 1898, at 4 o'clock, in the lecture hall of the college, and were witnessed by a large audience. Dr. C. Barnwell Robinson, dean of the faculty, opened the exercises with an appropriate address, and granted the degrees of D.V.S. to the following graduates: M. S. Lantz, of Pennsylvania; G. W. Bready, of Maryland; Theo. T. B. Kirk, of Pennsylvania, and Samuel Gelston and B. W. Gheen, of the District of Columbia.

The degree of fellowship was conferred upon W. A. Hedrick and George A. Prevost, after which Prof. Hedrick addressed the graduates.

Mr. S. Gelston, representing the class of '98, delivered the valedictory address amid great applause. Prof. Prevost then addressed the graduates and friends of the college.

The exercises were closed by remarks from the dean, in which he congratulated the graduates and thanked the friends and patrons for their kind attention and for the many valuable donations received during the session.

AMERICAN VETERINARY COLLEGE.

FOR the first time in many years the American Veterinary College held no formal exercises. The innovation of 1898, of conferring the degrees within the college walls, is likely to advance the college interests more, perhaps, than formal exercises in a public hall. It affords a better opportunity of linking this completed step of the undergraduate with a closer acquaintance and affiliation with the older graduates, and affords an opportunity of ushering in the added alumni amidst those who yearly return to their college parent to renew their devotion to her interests and to learn how better her progress may be advanced along new lines. While the adding of the present year's class was done under many disadvantages, it is to be hoped that next year, in following this departure, it may be made an occasion of rare pleasure and commingling among those who long to see the A. V. C. prosper.

The degree of D.V.S. (doctor of veterinary surgery) was conferred by the President of the Board of Trustees, Prof. Faneuil D. Wiese, and the delivery of the diplomas to each one of the graduating class by Dean W. J. Coates. The President of the Board also announced the successful winners of the several prizes offered for competition. The following gentlemen received the degree of the college: Charles Steward Atchison, Brooklyn, N. Y.; Walter Gideon Biehl, Loyalsock, Pa.; William Franklin Braisted, Port Richmond, N. Y.; Peter Thomas Bergen, Fordham, N. Y.; John Mason Broadwell, Morristown, N. J.; John Francis DeVine, Rhinebeck, N. Y.; Howard Julius Earl, Natick, Mass.; George Percy Ellice, Jersey City, N. J.; R. W. A. English, Jersey City, N. J.; Edward Charles Fox, Baltimore, Md.; John Frederick Fausner, New York, N. Y.; William Henry Hogan, Bayonne, N. J.; William Lawrence Johnson, Brooklyn, N. Y.; Lester R. J. Limbeck, Jersey City, N. J.; James Jerome Molony, Brooklyn, N. Y.; Charles Henry Myers, Middletown, Conn.; Andrew Raphael Morris, New York, N. Y.; Joseph Franklin Price, Cogan Station, Pa.; Adolph John Pistor, Jr., Newark, N. J.; Wilbur John Southey, Bridgeport, Conn.; Edward Fairchild Sanford, Oxford, Conn.; Robert Allen Stimp-

son, Port Henry, N. Y.; Charles Elmer Ellsworth Tomlinson, Williamsport, Pa.; Roger Irving Twombly, Alton, N. H.; James Washington Walker, Brooklyn, N. Y.; George Weisbrod, Brooklyn, N. Y.

John Francis DeVine, having passed the best general examination, received the Trustees' gold medal. Adolph John Pistor, Jr., having passed the second-best general examination, and Edward Fairchild Sanford the next-best examination, also received prizes. John Francis DeVine received the faculty's gold medal for best practical examination before a committee of three practising veterinarians of New York and Brooklyn. The prize of Dr. Liautard, for the best anatomical specimen prepared by a member of the graduating class, was awarded to Edward Charles Fox. W. Fretz, of the second-year class, having obtained the greatest proficiency, was awarded the free scholarship for the year 1898-99, and W. A. Young, being the most proficient in the first-year class, secured Dr. Liautard's medal for greatest proficiency in junior anatomy.

After conferring the degrees, at 4.30 P.M. the alumni association convened (March 31, 1898). President Howard called the meeting to order and the names of the members of the various classes represented were recorded. Secretary Faust read the minutes of the meeting of 1897, and the special and regular meetings of the Executive Committee announcing the provision of the alumni prizes, the annual banquet, and the selection of W. Horace Hoskins, of the class of '81, as toastmaster. President Howard received the graduates of '98 as members of the alumni association, and welcomed them with the hope that their interests in association affairs and college work would promote her interests, and that they would lead in the movement in 1900, our twenty-fifth anniversary, to make it an important epoch in the college's history. He urged the importance of maturing the plans at once for this celebration, and asked for the freest discussion of such plans as would fittingly celebrate this event. Drs. W. Herbert Lowe, William H. Pendry, E. B. Ackerman, H. D. Hanson, W. Horace Hoskins, and others, discussed the subject, and suggested many features and propositions, all of which were, by vote, referred to the incoming officers and Executive Committee with power to act. Interesting reports of our alumni in Maryland and Pennsylvania were received and much appreciated by all who had the pleasure of hearing them.

The death of A. Stein, M.D., emeritus professor of physiology, was formally announced and feelingly referred to, after which suitable resolutions relative to the great loss were adopted and ordered to be engrossed upon the minute-book.

The deaths of our fellow members, Theodore Birdsall, class of '81; E. Oscar Busener, class of '91, and C. Chaney Tietjens, class of '97, were announced and appropriate resolutions offered and adopted and ordered engrossed upon the minutes.

The election of officers resulted in the selection of Dr. Wm. H. Pendry, of Brooklyn, class of '83, as President, a well-deserved recognition of one who has been faithful and loyal to college, association, and professional interests in season and out of season. For First Vice-President, Dr. Robert W. Ellis, of New York City, class of '89, and for Second Vice-President, Dr. Warren L. Rhoads, of Lansdowne, Pa., class of '95, both active and earnest association workers. The efficient services of Dr. F. R. Hanson, of New York City, class of '95, as Treasurer, resulted in his re-election for this

place. Dr. C. E. Clayton, of New York City, class of '93, was selected as Secretary, it being desired to have this office in closer touch with the college in view of the approaching twenty-fifth anniversary. Dr. Sanford, class of '98, was elected Librarian.



DR. WM. H. PENDRY.

President Alumni Association, American Veterinary College.

Alumni Trustee, W. Herbert Lowe, reported the meetings of the Board of Trustees, and referred to expected changes in the Regents' examination that would be of much importance to the welfare of the institution.

The selection of Dr. Robert W. Ellis as lecturer on obstetrics, Dr. C. E. Clayton, as assistant to the chair of surgery, Dr. E. C. Beckett, as lecturer on zoötechny, and Prof. Olof Schwarzkopf, as professor of bacteriology, for the ensuing year, as faculty changes, were announced and received with much approbation and appreciation.

At 7 P.M. many faces were turned toward the Hotel Marlborough, where at 7.30 P.M. the twenty-third annual banquet of the alumni association was spread, and those who were privileged to join in the feast found much pleasure and enjoyment. Some thirteen classes were represented, extending from 77' to '98 inclusive, and many were the happy responses brought out by Toastmaster Hoskins from Dean Coates of '77; ex-President Howard, of '82; Arrowsmith, of '83; J. E. Ryder, of '84; Editor Bell, of '87; W. H. Lowe and Decker, of '88; H. D. Hanson and Ellis, of '89; Ackerman, of '91; Clayton, of '92; Butler, of '95; Leary, of '96, and members Weisbrod and Walker, of the class of '98, brought forth many rich things from their class-members, in class-history, class-songs, and college experiences, making it a very merry evening and fitting close to our college year of '98.

At a late hour the arrival of Prof. J. B. Stein proved a pleasure of much moment, and his thoughtful words about college work, laboratory needs, and how these grew in value from small beginnings, found an echo of approval and appreciation in the hearts of every one present.

LEGISLATION.

NEW YORK.

ASSEMBLY bill 979, known as the "bob-veal" bill, is for the purpose of preventing the sale for food of calves or carcasses of calves under four weeks old. This is believed to be in the interest of the consuming public, and will result in financial good to New York farmers. It is opposed by no one except dealers in "bob-veal" in the large cities and men who have been inspired by them. The benefit to the farmers will come from the fact that the calves which are now sold for veal at ages varying from a half-hour upward, would be kept at the farm and raised to the proper age and fattened, and would consume a sufficient quantity of milk, so as to relieve what is generally known at a certain time of the year to dealers as glut in the milk-market. These calves of the proper age would probably take the milk of 75,000 cows off the market, thereby producing meat from these calves that would be healthful and wholesome, and in which the consuming public would have confidence, so that veal would be more freely eaten in restaurants and hotels, thereby making a market for more farm produce from this State.

Assembly bill 1511 was approved by the department of agriculture at the request of milk-producers, or those representing them, in that portion of the State sending milk to New York and Brooklyn. A sentiment has been created during the past few years to the effect that there were men who might be prosecuted for violation of the law in the milk that they were selling, when it was just as it came from the cow. This law provides, first, that before taking a sample the agent of this department should call upon the vendor to stir thoroughly and mix the milk, and if he refuses then the agent is to do so. If the sample taken when analyzed is found below this standard, then this department is required to send a person within ten days' time to take a fair sample of the mixed milk from the herd from which the milk was drawn, taking it in the same way that the original sample was taken, and if upon analysis the second sample is not shown to contain a higher percentage of solids and a higher percentage of butter-fats, then no action lies against the defendant. We believe this in one sense is no hardship, although it entails a little more work, for we believe that the mixed milk from herds of

cows will not fall below the standard, but it is in response to public sentiment, and will probably facilitate our prosecutions in that section of the State.

The Empire State will test a new road-law destined to improve the public highways, the State paying 25 per cent. as much as is levied for road purposes by the districts taking advantage of the law.

Under new legislative enactments the Governor will appoint two supervisors and collectors of the tax imposed on racing, trotting, and running tracks. Said supervisors to examine the books and records of the tracks and to receive salaries of \$2500 per year. Charles W. Anderson has been appointed supervisor of the running tracks.

A ringing bill has been passed and signed by the Governor, thus making it a misdemeanor to enter for any race an animal under any other than its proper name.

DEHORNING AND CASTRATION.—J. M. B., Leslie, N. Y. : "I am a farmer and have dehorned cattle and altered colts for six years. Now the veterinarians say I have no right to do it, only as I own the stock. I have not been able to find out just what the law is." Answer : As to the law you can see a copy of it by going to the county clerk's office. Under its provisions you have no right to practise either dehorning or castrating. While I do not like to advise anyone to do an unlawful act, I will say that a profession that needs to get such a law passed to protect it is indulging in mighty low business. If you are a successful man in the line of castration and dehorning animals, and a farmer wants you to do it for him, you have the right to do it ; but you cannot charge for doing it, neither can you advertise yourself as a practitioner of the *business* unless licensed to do so. But if your neighbor wishes it done you have the right to do it, and then if he does not make you a present of a sum of money equivalent to its worth to him he is a meaner man than even the veterinarian who would try to prevent your doing it. You cannot collect any pay under the law, but who wants to collect anything ? Honorable men expect to pay for services rendered, and will. As I travel over the State in farmers' institute work I find no reputable veterinarians who feel at all like trying to enforce the law. It is those who have but little knowledge of the science who want law to protect them. They, of course, are howling to have laws passed to aid them, yet claim that it is

the farmer who is protected from impostors by this law. But in most cases whenever they look in the mirror they will see the image of one who would fleece the farmer for more than the fellows who castrate animals or dehorn them. I think I can safely say that the law among reputable veterinarians of the State is a dead letter, and public opinion is certainly against it, and no one who castrates and dehorns in a proper and humane manner need have much fear of prosecution under the law.—Veterinarian Smead, in the *National Stockman and Farmer*, February 24, 1898.

It would be well to know who this large number of veterinarians are, and if their education was received from the same sources as the veterinarian of the *Stockman and Farmer*. Such evidences of appreciation of the value of higher veterinary education as implied above are in keeping with the subjoined letter from an existing practitioner in Pennsylvania. Further comment is unnecessary.

The following letter from one of Pennsylvania's "existing practitioners" was received in reply to a request to fill out a blank that was sent to all of the registered veterinary surgeons in the State :

S———, February 21, 1898.

DEAR SIR : I git your letter in hand Last week for to fill out this Plank Now I wish you would lit me know wich veterinary surgeons tells you About me I wish you would sent me the law that would Compel me to fill out that Plank Now I will tell you I did not graduate I handle medicine since sixty nine and Some before that time but not so regular Just since seventy nine I bin regular in this bisness and and Just so much to Do as annyone from the graduated and I used the Humphreys Specifice since 1882 with the old school medicine I treat over thirty four hundred horses with lame and all kind sickness and lost only twenty three horses that is all what I have to say Just now I Registered in 1890 P———.

Yours Truly

POINTS.

Dr. Cooper Curtice, of Moravia, commenting upon the examination of the Gray herd of tuberculous cattle at Elmira, points out the source of infection of the young animals, as indicated by the location and condition of development of the lesions, as arising in a large proportion from the food which, for six months, was skim-milk.

The meat-inspection service of the Department of Agriculture promises to more than exhaust this year the increased appropriation for microscopical inspection of meats, owing to the greatly enhanced demand for these products in foreign markets.

France now imposes a duty of forty dollars on all horses imported into that country. Evidently too many American-bred horses were finding purchasers there.

Dr. John Wende, of Buffalo, has brought forth a very useful and ingenious device of aiding more ready catheterization of the bovine species. The hollow tube is made of sheet-copper, about eight inches long, with a long bevel on one end and square at the other. The bevelled end is introduced through the neck of the bladder, and the ordinary catheter inserted readily through the tube, and after the introduction of the catheter the tube is withdrawn by sliding it out over the catheter.

Asses will be used by the Bureau of Animal Industry in preparing the hog-cholera serum.

The Supreme Court of Iowa recently decided that dogs were chattels, and reversed a decision of a lower court discharging a man for stealing a dog on the grounds that dogs were not property.

The health department of the City of New York is producing tuberculin and mallein. They have nine horses for the production of diphtheria-antitoxin, three for tetanus-antitoxin, three for pneumococcus-antitoxin, two for typhoid-antitoxin, and three for streptococcus-antitoxin.

Veterinarian Langdon, of North Dakota, reports through the local journals successful indications of a curative character in a series of experiments with glandered horses, and is hopeful of finding a reliable cure for this disease. Rather treacherous grounds to be working on, considering the nature of the disease.

The Jury-bill exempting veterinarians of New York and Kings Counties has been signed by the Governor and is now a law.

The Spanish Government is said to have purchased 8000 horses and mules in this country since the trouble in Cuba began.

The United States Government has recently been a large purchaser of horses in Western horse-marts. One order for 2000 was placed at one time.

Veterinarian H. B. Ambler, of Chatham, killed twenty-six tuberculous swine at Nivenville, comprising almost the entire

drove. The origin was thought to be from the consumption of offal of tuberculous cattle.

At the annual banquet of the Kansas City Veterinary College, early in March, the entire menu served, from soup to filet, was taken from the choice cuts of horseflesh. It was much enjoyed by all present.

The Examining Board of Horseshoers visited Rochester, Albany, and New York City in April, conducting examinations of unlicensed shoers, veterinary surgeons conducting shoeing shops. The names of all those not complying with the requirements of the law will be placed in the hands of the grand jury for prosecution in the respective districts.

Dr. S. D. Brimhall, field veterinarian to the Minnesota State Board of Health, has recently investigated a series of interesting calk-wounds, carbuncles of the coronary band, etc., among horses in the logging-camps. It had been supposed by local authorities that a new and very infectious disease had appeared, and considerable excitement prevailed.

The New York State Board of Health examined sixty-eight cattle in March, four of which were condemned as tuberculous. In the past nine months five hundred and eight animals were examined, eighty-one of which were condemned and slaughtered.

New Jersey's outgoing Legislature granted \$15,000 to the State Board of Health; \$12,000 to the Dairy Commission; \$5000 to the Tuberculosis Commission; \$15,500 to the Agricultural Experimental Station.

The Tuberculosis Committee of the New York State Board of Health continues to examine a small number of cattle each month for tuberculosis.

Dr. E. S. Moyer, of Blooming Glen, Pa., is just recovering from an attack of typhoid fever, after an illness of three months.

FOR SALE OR LEASE.—Having permanently withdrawn from private practice, I offer at a sacrifice and on easy terms, my Infirmary, Offices, and Residence at Bloomington, Illinois, or would lease to a responsible party. Property centrally located; field for practice unsurpassed; patronage established in 1879 still conducted on premises.

W. L. WILLIAMS, Cornell University, Ithaca, N. Y.



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SANITATION VERSUS TUBERCULIN IN THE ERADICATION OF TUBERCULOSIS.

BY G. N. KINNELL, M.R.C.V.S.,
PITTSFIELD, MASS.

As bearing on the question of eradicating tuberculosis from a diseased herd and of the competent disinfection of a tuberculosis-infected building, I submit reports of my experience in two cases, an experience which has stood the test of the past four years, and where the conditions which obtain to-day are, to all appearance and in every probability, entirely satisfactory.

First, we will take the herd of Mr. W. D. Sloane, of Lenox. In December, 1894, this herd comprised the following animals :

Mature milch cows	22
Mature bull	1
Young bull	1
Young stock (heifers ranging from six months to two years old)	11
Total	35

On Christmas day, December 25, 1894, the twenty-two milch-cows were submitted to the tuberculin-test, and the temperature-chart of the reactions obtained is herewith subjoined.

CHART 1.—MILCH COWS.

Herd number.					
42 . .	102°	102.6°	102°	101.8°	
30* . .	102.6	106.6	107.4		
34 . .	102.12	102.4	102.4	102.4	102.2°
45* . .	101.4	105.8	104.2	105.4	
40* . .	101.5	102.6	104.6	106	
28* . .	100.8	103.2	103.2	104.8	
14* . .	101	103	105		
44 . .	101	102.6	101.8	101	100.8
39 . .	101.25	101.4	101.4	101.6	102

Herd number.					
4*	100.8	102.4	102.6	104.6	
25*	101.4	104.2	106.2		
22*	101.25	104.2	106	106.2	
7*	100.6	102.4	103.6	105.4	
43*	102.75	103.4	103.8	105.6	
19	100.6	102.4	102.6	102.8	102
21*	101	106.2	106.6		
38*	101.4	104.4	106.4	107	
17	101.6	103	102.8	101	101.6
37	101.2	102	101.8	101	
48	101.5	103.4	101.8	101	101
49	102	103	102.6	101	
36*	100.4	105	106.6	105.8	

The reagent used was the tuberculinum Kochii of Libbertz, the dose used being two minims diluted with 1 per cent. solution carbolic acid in distilled water. The column of figures to the left of the above chart are the herd numbers of the cows, and these numbers will again be referred to further on in the report.

It will be noticed that those animals marked with an asterisk (*), thirteen in all, gave decided reactions. Please note, also, that the diseased animals were in clumps or bunches. The worst-diseased individuals were found in the centres of these clumps. The animals were condemned by the State authorities and killed. In every instance well-marked tuberculosis was present, some of the cases being very bad indeed.

On January 20, 1895, all the young stock and both the bulls were tested; also five of the milch-cows were re-tested, and the following are the charts of temperatures obtained :

CHART 2.—TEMPERATURE OF YOUNG STOCK (HEIFERS).

No reactions.					
Herd number.					
50	101.2°	101.2°	101°	100.8°	101.2°
51	101	101.2	101	101	101
52	100.8	101.4	101.6	101.2	101.2
53	101	101.4	101	100.8	101
54	101	102	102.4	101.4	101.6
55	101.2	102	102	101.8	101.6
56	100.6	102	101.8	101	101.4
57	101.6	102.6	102.4	101.8	101.6
58	101.6	102	101.4	101.4	101.6
59	101.2	102	101.8	101.2	101.4
60	102.2	101.6	101.6	101.4	101.6

CHART 3.—TEMPERATURE OF BULLS.

Young bull	101.6°	102°	101.6°	101.8°	102°
Mature bull*	101.2	103.4	106.2	106.8	

CHART 4.—TEMPERATURE OF RETESTED COWS.

Herd numbers the same as in Chart 1.

Herd number.					
44 . .	100.8°	101.4°	101.6°	101.2°	100.8°
39 . .	101.4	101.2	101.8	101.6	101.2
19 . .	102	102	101.8	101.4	101
17 . .	101	101.2	101.2	101	101.4
48 . .	101	101.6	101.6	101	101

It will be noticed that the only animal to react was the mature bull. He was condemned and killed. The lesions found were quite extensive, and, in my opinion, were of at least two-years' standing.

We had thus slaughtered thirteen out of twenty-two milch-cows and one bull, making fourteen out of a herd of thirty-five head.

All of the heifers were sired by the diseased bull, which must have been diseased at time of service. The dams of these heifers are shown by the following chart, and by reference to the first temperature-chart it will be seen that seven of these healthy heifers were born of diseased dams.

CHART SHOWING DAMS OF HEIFERS.

Dam of heifer	No. 50	was	cow	No. 7*	(tuberculous).
" " "	51	"	"	21*	"
" " "	52	"	"	25*	"
" " "	53	"	disposed of	previous to	test.
" " "	54	"	cow No. 28*	(tuberculous).	
" " "	55	"	"	30*	"
" " "	56	"	"	21*	"
" " "	57	"	"	19	(healthy).
" " "	58	"	disposed of	previous to	test.
" " "	59	"	cow No. 37	(healthy).	
" " "	60	"	"	14*	(tuberculous).

Mr. William Griffin (manager for Mr. Sloane), being anxious to make the work as thorough as possible, gave me *carte blanche* to kill any of the remaining animals which I might think looked in any way suspiciously of being diseased. Acting on this, we slaughtered the milch-cows Nos. 17-19 and 39. The two latter, Nos. 19 and 39, were found entirely clean and healthy in every way. In No. 17, on the other hand, we found a bronchial lymphatic gland enlarged to the size of a duck's egg, and containing glairy, liquid pus. There was an absence of the cheesy matter usually associated with tuberculosis, and the walls of the pus-cavity were thinner than we usually see in lymphatic glands undergoing tubercular supuration.

It here devolves to say a few words on the arrangement of the

stable where these animals were kept and on the steps taken to cleanse and disinfect it. While all the animals were kept under one roof, yet the building can best be described as consisting of two parts. That part in which the milch-cows were kept measures 30 x 60 feet, and the ceiling is $10\frac{1}{2}$ feet high. The floor is of brick, set on edge in cement. The windows, twelve in number, face east and west; they measure $3\frac{1}{2}$ x $2\frac{1}{2}$ feet, and are placed within two feet of the ceiling. There are two ventilators, each three feet square. The ceiling is of narrow pine boards, planed and varnished, and the lining of the walls is of the same material. The stable is arranged for twenty-six cows, the animals standing in two rows facing each other, with walks between and behind them about five feet wide.

The young stock were, for the most part, kept in box-stalls arranged in two rows and communicating with the cow-stable by a five-foot passageway. While under the same roof they were, with the exception of the passageway, isolated from the part in which the cows were kept, and, although reared on their milk, never came in direct contact with them.

Cleansing and Disinfection.

All the remaining stock having been removed, cleansing and disinfection was proceeded with as follows:

1. Dry brushing of the whole interior of the building.
2. Scrubbing the entire interior with soap and hot water *ad libitum*.
3. Saturation of the entire interior with an antiseptic wash made up in strength and of ingredients as follows: Bichloride of mercury, one ounce; glacial carboic acid, twelve ounces; hot water (scalding), twelve gallons. This was applied copiously and forcibly with large garden syringes.
4. The doors and windows being shut tight, the atmosphere was saturated with the fumes of burning sulphur for a period of two nights and one day.
5. The doors and windows were then thrown open to the light and the air, and left so for a week.
6. The place was dried, the entire woodwork sandpapered and submitted to two coats of hard varnish.
7. And to all this I would say the work was done religiously and well.

In the bull-pen there was an extra lining of heavy, rough boards. These were removed and burned, but apart from this none of the

woodwork was either removed or destroyed. In order to avoid danger of poisoning from the bichloride of mercury solution, the mangers were again washed out with simple warm water.

The animals were then taken back into the stable, and the herd replenished with tested cows from the farm of Mr. W. K. Vanderbilt on Long Island. Since then the herd has been self-sustaining. The original young stock as they developed have been introduced into the dairy, and other young stock have been born and grown up to take their proper place among the milch-cows, but during all these years no symptoms or evidences of tuberculosis have developed or been found either among the original or among the introduced stock. This negative evidence must be admitted as of some value, but apart from it we have, as the years went past, been able to accumulate a large amount of positive evidence which is of much greater value as a proof that the herd is free from disease. Thus during the last three years four¹ of the cows have been killed for beef, and inspection at time of slaughter failed to reveal any of the lesions of tuberculosis. In the month of September, 1897, seven of the milch-cows died from or were killed on account of poisoning with white lead. In all these cases a careful postmortem examination for the lesions of tuberculosis was conducted, but no lesions were discovered. The following table shows the animals that have been killed or have died.

TABLE SHOWING DISPOSAL OF THE BALANCE OF THE ORIGINAL HERD
UP TO THE PRESENT TIME.

Mature Cows.

- No. 42. Still in herd.
- " 34. Killed for beef; healthy.
- " 44. Not in herd; no record of what became of her.
- " 37. Still in herd.
- " 48. Killed for beef; healthy.
- " 49. Sold to W. W. Law, of New York.

Heifers.

- No. 50. Still in herd.
- " 51. Died of lead-poisoning September, 1897; not tuberculous.
- " 52. Killed for beef; healthy.
- " 53. Killed for beef; healthy.
- " 54. Died of lead-poisoning September, 1897; not tuberculous.
- " 55. Died of lead-poisoning September, 1897; not tuberculous.
- " 56. Still in herd.
- " 57. Still in herd.
- " 58. Still in herd.
- " 59. Still in herd.

¹ Two of these were members of the original herd of mature cows.

Heifer.

No. 60. Still in herd.

" 61. Sold; no record of what became of her.

Nos. 51, 52, 54, and 55 were born of diseased mothers.

The second case I wish to point out was on a much smaller scale, and will not take so long to relate.

In June, 1894, Dr. Henry Colt, of Pittsfield, had six cows and a six-months'-old calf. The tuberculin-test was applied, and all of the cows reacted, the calf alone failing to do so. The cows were condemned and killed. Two of them proved to be unusually bad cases; one of these, a Jersey, was the mother of the six-months'-old calf, and was also pregnant at the time of slaughter.

The stanchions were removed and the floor, which was old, torn up and destroyed. The urine-soaked earth was dug up and removed. The interior was then brushed, washed and treated with the antiseptic wash previously mentioned. The ceiling and walls, being of rough, unplanned wood, were heavily washed with hot white-wash. The stable was left vacant and open to the sun and the air until the fall, when a new floor was put in, and the stanchions, which had been washed and left out of doors all summer, were put back in place. The calf was taken back into the stable, and has spent her winters there ever since. She is now a nice, plump four-year-old cow, and on January 12th of this year was tested with tuberculin without giving any reaction.

This stable, arranged for five cows, measured $15\frac{1}{2} \times 14\frac{1}{2}$ feet, ceilings $7\frac{1}{2}$ feet, two windows (one north and one south), one ventilator one foot square; average space per cow approximately 337 cubic feet.

Reviewing the history of these two cases we are confronted with a number of pregnant facts. Taking the Sloane herd these facts are:

1. That by the aid of tuberculin fourteen diseased animals were eliminated from a herd of thirty-five.
2. That eleven heifers and one young bull were all sired by a diseased bull.
3. That of these eleven heifers seven were born of diseased mothers.
4. That all of them were reared on milk, most of which was drawn from diseased cows.
5. That they never came in direct contact with the diseased animals.
6. That notwithstanding the facts that all were sired by a dis-

eased bull, that seven of them were born of tuberculous mothers, that all of them were reared on milk from tuberculous cows, and that all of them have been kept in a stable which was previously the home of thirteen diseased cows, that notwithstanding these facts we find, at the end of four years, that at least five of these eleven animals are absolutely free from tuberculosis, and that in every human probability all of them that now remain alive are likewise free from this disease.

7. Of the cows introduced from Long Island and placed in this previously infected place some have died and been found healthy, and according to every appearance, and in accordance with every analogy, those that remain are likewise free from disease.

The lesson to be derived from the herd of Dr. Colt points exactly to the same conclusions, and yet here we must recognize a very material and important difference. In the case of Mr. Sloane, the stable was large, airy, well-lighted, ventilated, had a water-tight floor, readily lent itself to cleansing and disinfection, and was altogether, from a sanitary standpoint, well arranged.

The stable of Dr. Colt, on the other hand, was the very reverse of this. It was small, had insufficient cubic space, but little ventilation, no proper drainage, had pervious, urine-soaked floors, was finished in rough timber, and, from a sanitary point of view, was badly arranged. Taken on the whole, it is not too much to say that it was considerably worse than the average Massachusetts cow-stable. And yet, in spite of all this and the fact that it was a badly-infected stable, the evidence is that the means of disinfection were adequate and that the infection of tuberculosis was completely eradicated.

Reviewing the two cases as a whole, the immense preponderance of evidence is in favor of these conclusions:

That, by the judicious use of tuberculin, tuberculosis can be eradicated from a herd of cows.

That tuberculosis is not an hereditary disease.

That so far as calves are concerned, the danger to them from the use of milk from tuberculous cows must necessarily be very slight.

And that, given an infected building, it is possible, at comparative little cost, to make it entirely free from infection and a safe place in which to keep stock so far as the disease, tuberculosis, is concerned.

P. S.—In dealing with tuberculosis-infected buildings, with a view to rendering them aseptic and free from tubercle bacilli, there is one feature which, to my mind, has never been sufficiently

appreciated by either the veterinary profession or by the laity. This feature is the necessity of dealing in the most radical and thorough manner with the floors and with the urine-soaked and feces-saturated underlying earth.

As the strength of a chain is limited to the weakness of its weakest link, so the success of prophylactic measures depends no less on their thoroughness than on their general completeness. We occasionally see water-tight floors in cow-stables, but it must be admitted that they are very exceptional. The immense majority of floors are freely pervious, and the underlying earth simply saturated with fermenting organic matters acting both as pabulum and incubator for disease-producing organisms. There are two ways by which this difficulty can be dealt with:

The starving-out process—that is, to remove all stock from the buildings, and leave them unused until the organic materials have become exhausted and the bacilli die from want of suitable food. I have known this practised with success; but it is a matter of years, a long, tedious, expensive, unscientific method.

The other and better way is to remove the floors and dig out the subjacent earth. The extent to which this has to be done depends on the nature of the soil, but it rarely happens that it is necessary to remove more than two or three feet, its place, of course, being supplied by fresh virgin earth. Nor is this and the other necessary cleaning steps an expensive process. Soap and water and manual labor are cheap, and the stables are few and far between that cannot be rendered thoroughly aseptic and wholesome for twice the cost of one good cow.

Repeated experiences of the recurrence of tuberculosis in stables where every other precaution had been rigidly enforced, but this neglected, have convinced me that, except where the floors are water-tight (as in the Sloane stable), no system of disinfection can be complete without it. And not only do I claim it is essential to completeness, but from the rapidity with which I have known clean herds to become diseased, and from the general way in which they have become diseased when no other possible means of infection could exist, I am convinced that while the necessity of dealing in a competent manner with the floors is the precaution least practised, it is, of all measures, the most essential to success.

While it is aside from the purpose I had in beginning this paper, I cannot refrain from calling attention, as in years gone by I have called attention, to the insane manner in which cows are ordinarily tied up, their heads all chained and blocked and tied together in

one long trough, sneezing and coughing and hawking in each other's faces. Why not partition each cow off, if the partition be only as high as her elevated head, giving to each her own crib, where she can eat her food in peace and be to some extent protected from the infection, it may be, of her diseased neighbor?

When we remember that we are dealing with a disease which, after all, is but feebly contagious, I think that there are great possibilities for the ultimate suppression of tuberculosis along this line alone. By even mail I send you a photograph showing something of what may be done in this way. Within the past year I know of two diseased cows which had been kept for three years in such a partitioned stable along with twelve other cows without communicating the disease to them. These two cows were purchased out of a herd that was notoriously tuberculous, and were undoubtedly diseased at the time they were bought. During their three years' stay in their new quarters one cow stood at the end of the row and the other right in the middle of it.

This problem of suppressing bovine tuberculosis is engaging the attention and testing the resources of every one of the advanced civilized countries of the world. It is preëminently a problem for the veterinary profession to solve, and a task for it to work out. Along this line there are reputations to be gained and credit to be earned, and from the widespread nature of the malady there is opened up to the veterinary profession as a whole a wide field of opportunity such as seldom falls to the lot of any one profession, an opportunity to advance itself in the esteem and regard of all thinking, wide-minded people.

With tuberculin as a diagnostic agent; with powers of compulsory slaughter or isolation; and, more than all, with the enforcement of complete sanitary regulations, it seems to me a successful fight against the scourge is assured.

TOE-DIVIDED SHOES FOR CONTRACTED HOOFS.

BY M. J. TREACY, M.R.C.V.S.,

VETERINARIAN, UNITED STATES ARMY, FORT MEADE, SOUTH DAKOTA.

AN article appeared in a recent English journal advocating the above. Their advantages are apparent to the tyro. Their retention on the feet was a very doubtful factor to the writer. The following experiments were instituted: These shoes were fitted as usual, then heated at the toes and divided by a cold chisel; the

consequent roughness filed smooth ; they were then applied slightly apart at the toes, say one-eighth of an inch. One additional toenail was used in each half where heel or toe-calking was applied. These shoes must be fitted hot.

On the third day of January there were shod after the above fashion the following animals affected with contracted hoofs : One driving team doing ten miles daily, heel-calking; one driving team doing twenty miles daily, flat shoes; two saddle horses doing ten miles daily, heel- and toe-calking; one draught-mule doing fifteen miles daily, heel- and toe-calking. On February 17th, or after six weeks' daily work, these shoes were removed, and were quite firmly attached to the feet. The work was performed on country roads and at all gaits.

All the feet had spread at the heels from one-half inch to one inch. All the front toes of the shoes had been forced together by the heel expansion, where they had been originally left one-eighth of an inch apart. The frogs were enlarged and expanded. The animals were all improved visibly in their gait, and the majority of them were sound. I have some curiosity as to how these shoes would be retained on pavements, and would like to hear from some city confrères.

My private team was shod with toe-divided shoes, and I will use no others, unless I am compelled to do so by unforeseen circumstances, as one of them, a valuable standard-bred driver and family friend, has become sound by the use of these shoes, although I bought him as a " sore horse " five years ago. After two shoeings with the above he is now sound, his heels having spread over one and a half inches at time of writing. Three out of four cases of obscure lameness responded favorably to the application of toe-divided shoes and retention at labor. And I have never failed so far to see a contracted foot which did not expand visibly, more particularly when the shoes were flat (without toe-pieces and calking), the feet soaked and pressed daily and frog and bar ground-contact obtained. Even in well-marked cases of navicular disease, where frog-pressure cannot be tolerated, there is a marked improvement in the movements after their application.

The veterinarians of Austria are preparing to make a collection of their writings that have appeared during the reign of the present Emperor.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

ROENTGEN RAYS AS A REMEDY FOR ARTICULAR RHEUMATISM.—The Russian medical journal *Wratsch* contains a communication by Sokolow in regard to the reported successful treatment of articular rheumatism in children. The patient, wrapped in linen cloths, was placed at a distance of from 50–60 cm. from the source of the rays and exposed to their influence from ten to twenty minutes. The first experiment was made on a nine-year-old girl whose wrists, ankles, and knee-caps were severely swollen, and who suffered great pain; all these symptoms of disease totally disappeared after she had been treated twice. In the second case, that of a fourteen-year-old girl, all rheumatic pains vanished after one application of the rays. In the third case, a five-year-old girl, whose wrists and knee had been severely attacked, was cured after the affected parts had been subjected to the rays three times. In this case it was possible to observe the swelling diminish beneath the rays; this is said to have been confirmed by actual measurements made from time to time; in four days the circumference of the wrist diminished 3 cm. The last patient was a girl, thirteen years of age, that suffered from chronic rheumatism and had had heart-trouble for five years. The disease had grown worse, and the pain was very excruciating. The swelling at the knee had contracted the leg at an angle of 45°. Each time the Roentgen rays were applied to the part affected she was able to stretch the leg somewhat further, and the pain diminished; all signs of disease vanished after four applications of the rays.—*Thierärztl. Centralblatt*, February 1, 1898.

THE QUESTION OF RAISING THE OFFICIAL RANK OF DISTRICT VETERINARIANS IN AUSTRIA.—An appeal by F. H. The state veterinarians of Austria have already attempted many times to improve their rank in the official classes by sending deputations and well-considered petitions to the proper departments. Each time the reception has been a courteous one; each time assurances have been given to the deputations that the difficult and beneficial

work of the official veterinarians was known and recognized; each time they were given prospects of a reform in the present untenable relations of rank—every time the veterinarians have come away with great hopes and have announced the approach of better times, and every time these hopes have proved deceptive. If it is better in itself to feel compelled to beg for what belongs to us by right, and for that reason ought to be given us without a petition, it is all the more discouraging when no hearing is given to repeated petitions. In spite of this the veterinary organs combined again on the 5th of this month in an attempt to acquire their just rights. A delegation consisting of five district veterinarians made appeals before the Ministry of the Interior and that of Finance. Since that they handed in a petition in which they explained the real condition of affairs and begged that district veterinarians be enrolled in the X. and XI. class of public officials.

The first step in this proceeding did not seem favorable, for when the delegation appeared in the Interior Department they were met with the unpleasant information that in consequence of an unexpected conference of all the ministers all audiences on that day had to be declared off. Nothing daunted, however, they waited upon the accredited representatives of the absent ministers, as well as upon all the committees having to do with the subject. Everywhere their reception was a courteous one, and everywhere they received the assurance that the wishes of the veterinarians would receive careful consideration, and the matter would be settled as soon and as favorably as possible. Are we, then, to be put off, this time also, with mere promises? We do not wish to look at the dark side of the matter, but trusting to the justice of our cause and to the word of Councillor Sperk not only cherish new hopes, but await confidently that after a long period of mortifying disregard the hour will at last strike when a just reward will be given to honest service.—*Idem.*, February 10, 1898.

SPONTANEOUS RECOVERY FROM A CHRONIC PROLAPSUS PENIS IN THE HORSE.—District veterinarian Röder reports that the purchaser of a five-year-old Wallachian horse noticed immediately after his purchase, in March, 1892, that the penis hung out of its sheath almost at arm's length, both while walking and trotting. The cause of the trouble could not be ascertained, and all treatment was futile. After continuing about five years the trouble began to improve spontaneously, so that the projection did not exceed a hand's breadth.—*Idem.*

A NEW TATTOOING APPARATUS.—Otto Bertram, of Vienna, has invented a new tattooing instrument. The needles of the apparatus leave a very fine hole, and pass each time through a layer of coloring matter, so that every mark is indelibly imprinted. In swine this stamp is clear and plain even after scalding. The price is about ten dollars. Further information may be had at 73 Frankfurter Allée, Vienna. Any monogram can be made.—*Idem*.

THE GROWTH OF ANIMALS.—Different animals, when young, grow with very different degrees of rapidity. Man grows slower than the horse; the horse more slowly than the cow, and the latter slower than the dog. The weight at birth of human babies averages about 3000 grammes in the case of girls, and 3150 grammes in boys. The average weight of a newborn foal is about 50–52 kg.; of a newborn calf, 35.5 kg. A child doubles its weight at birth in about six months; a foal in two months; the calf in six to seven and one-half weeks; a young pig in eighteen days, and a lamb in ten days. The rapidity of growth is therefore very different in different animals.

Prof. von Bunge, in his *Text-book of Chemistry*, advanced the theory some years ago that some relation must exist between the rapidity of growth and the composition of the milk. Fr. Pröscher has lately tried to prove this theory by a series of investigations as to milk made in Bunge's laboratory, and published in Hoppe and Seyler's *Zeitschrift für Physiologische Chemie*; at the start it is natural to assume that the milk of rapidly-growing mammals would be richer in those elements which go especially to produce tissue, namely, albumin and salts. Pröscher's investigations have confirmed this assumption. According to Emil Pfeiffer's analysis, the milk of the human mother is very rich in albumin the first and second day, amounting to 8.6 per cent. After eight to fourteen days the albuminous element sinks to 2.5 per cent. It then remains at this point during the first three months, to fall during the second half year to 1.6 per cent. According to this the growth of the infant is greatest during the first eight weeks; it reaches its climax of increase in the third to the fifth week. With the decline in the albuminous element the daily increase in weight sinks, and averages in the middle of the first year daily only 0.39 per cent. of the entire weight.

As in man, so the element of albumin influences the rapidity of growth in all the mammals. In the following list the milk of the various animals is named according to the proportion of albumin-

ous matter which it contains, beginning with the lowest: human milk, 8.6 per cent., she-ass, mare, goat, elephant, camel, cow, buffalo, swine, sheep, dolphin, dog, cat, reindeer.

A characteristic difference in the constituency of the milk is conditioned by the climate. The milk of animals living in the south is poor in fat, but rich in sugar—*e. g.*, the ass's, camel's, horse's, and elephant's. The reverse is true of animals living in the north, as reindeer's milk. This corresponds also to observations made in regard to the various human tribes. Those living in the south live principally upon strong, saccharine foods, while the inhabitants of the north much prefer fatty food. Strange to say, elephant's milk is an exception; its milk is five times richer in fatty materials than cow's milk (20.5 : 4.5 per cent.). The ideal milk for the creamery would be dolphin's milk, which contains 43.7 per cent. of fat. The exception in the case of the elephant I account for by the fact that this animal was originally a northern animal, inhabited a colder climate, but, in spite of the fact that it has migrated to a warmer climate, still retains the same constituency in its milk. In like manner, from the richness of human milk in sugar and its poverty in fat, we may conclude with the same probability that man lived originally in a warm climate.—*Idem.*

FRENCH.

UNDER THE DIRECTION OF DR. ALEXANDER GLASS,
PHILADELPHIA.

RESEARCHES AS TO THE VALUE OF MALLEIN AS A DIAGNOSTIC AGENT IN GLANDERS.—In a stable containing forty-six horses, four developed and subsequently died from acute glanders. Not only was the disease diagnosticated during the life of the animals, but after death, postmortem being made. By order of the authorities the remaining forty-two were condemned and used to demonstrate the value of mallein as a diagnostic agent in future suspected cases of glanders.

On March 18th, at noon, the injections were commenced, the temperatures having been taken before any injections were made; observations were also made two hours, five hours, and fourteen hours after the injections. On the first day eight of the horses were injected; the second day, twenty; and the third day, fourteen. For this observation Drs. Tiede and Olt used mallein obtained from the Prussian veterinary department, and in their report

divided the cases into three groups, according to the reaction shown in their temperature after injection.

In nine horses the temperature rose 1.5° ; in the second group, six horses, the temperature rose from 1° to 1.4° ; and in the last group, which consisted of the remaining animals, there was little or no reaction—if there was any, it was so slight as to be hardly worth notice.

The animals were killed a few days afterward, and the results of the postmortems compared with the animals that reacted. Of the forty-two subjects only three were found to present distinct lesions of glanders, and these were in the group of animals that had not presented any reaction at all; while in those which reacted no actual lesions of the disease were found.

The observers had, therefore, to agree with the opinion of Schultz and others, when they made their reports to the authorities, that the mallein prepared in Prussia could not be regarded as a reliable agent in the diagnosis of glanders in the horse, and while they came to this conclusion in reference to the mallein prepared in Prussia, they do not place it on the same status as that prepared at the Pasteur Institute, which has given great satisfaction, up to the present time, in all parts of the world.—*Archiv fur Wissenschaftliche*.

SELECTIONS.

FOR PURE FOOD.

THE pure-food bill, from which the following extracts are taken, will prevent the shipping of the products of diseased animals from one State to another.

The enforcement of this act is in the hands of the Secretary of Agriculture, and it may be that the work of the Bureau of Animal Industry will be enlarged and made of still greater value to the country in connection with this measure.

A National Pure-food Congress was held in Washington from March 2d to 5th, to discuss and further this bill. The Congress was made up of representatives of agricultural organizations, State departments, or boards of agriculture and health, trade organizations, etc. There were about four hundred delegates. Among those in attendance were two representatives of the veterinary profession: Dr. D. E. Salmon, of Washington, D. C., and Dr. Leonard Pearson, of Pennsylvania. Certain extracts from the bill follow:

A Bill for preventing the adulteration, misbranding, and imitation of foods, drugs, and condiments in the District of Columbia and the Territories, and for regulating interstate traffic therein, and for other purposes.

“ That the introduction into any State or Territory or the District of Columbia or foreign country of any article of food, drugs, or condiments which is adulterated or misbranded within the meaning of this act, is hereby prohibited, and any person who shall knowingly ship or deliver for shipment from any State or Territory or the District of Columbia or foreign country to any State or Territory or the District of Columbia, or to a foreign country, or who shall knowingly receive in any State or Territory or the District of Columbia or foreign country, or who, having received, shall knowingly deliver for pay or otherwise, or offer to deliver to any other person, in original unbroken packages any such article so adulterated or misbranded within the meaning of this act, or any person who shall sell or offer for sale in the District of Columbia or the Territories of the United States such adulterated, mixed, misbranded, or imitated foods, condiments, or drugs, shall be guilty of a misdemeanor, and for such offence be fined,” etc.

“ The term ‘ food,’ as used herein shall include all articles used for food, drink, or condiment by man, whether simple, mixed, or compound.”

“ That for the purposes of this act an article shall be deemed to be adulterated in the case of food or drink.

“ If it consists of the whole or any part of a diseased, filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or of an animal that has died otherwise than by slaughter.

“ That this act shall not be construed to interfere with commerce wholly internal in any State, nor with the exercise of their police powers by the several States.”

“ That any article of food, condiment, or drug that is adulterated within the meaning of this act and is transported, or is being transported, from one State to another for sale, or if it be sold or

offered for sale in the District of Columbia and the Territories of the United States, shall be liable to be proceeded against in any District Court of the United States within the district where the same is found and seized for confiscation, by a process of libel for condemnation. And if such article is condemned as being adulterated, the same shall be disposed of as the said court may direct, and the proceeds thereof, if sold, less the legal costs and charges, shall be paid into the Treasury of the United States. The proceedings in such libel cases shall conform, as near as may be, to proceedings in admiralty, except that either party may demand trial by jury of any issue of fact joined in such case, and all such proceedings shall be at the suit of and in the name of the United States."

WOLF-IN-THE-TAIL.

EDITOR OF FARMERS' REVIEW: Each recurring spring there are in this vicinity a number of milch-cows that die soon after calving. The first impulse of the frightened owner is to send for a "doctor." We always have a good crop of "cow-doctors," in season and out. We make haste to secure the quickest one obtainable, and generally find him loafing around the village depot waiting for something to turn up. He is well equipped for his profession, as he understands it, and he is also the owner of a low-wheeled wagon suitable for a cow-hearse, and is familiar with the shortest route to the bovine potter's field. He visits the unfortunate cow, and after an apparently critical examination, he pronounces the disease as "wolf-in-the-tail." He don't show you the wolf, but assures you that it is there. Some of them—the alleged doctors—call it "worm-in-the-tail," and it is for that reason, I presume, they dose the cow with whiskey, probably upon the theory that in its distillation whiskey comes from the worm—and, therefore, naturally will "go for the worm." In most cases the cow dies, and you pay the whole bill to the one person, as he acts as both medical adviser and undertaker. Once in a while a cow has had but a light attack, and by the time the torturer has arrived has regained enough stamina to overcome the disease and his treatment, and lives, and for generations thereafter one hears of how Sam Johnson cured Jones's cow of "wolf-in-the-tail."

Your valuable paper is always ready to shed the light of progressive research upon the musty ignorance of the past, and I know of no more humane action that could be taken than to have your veterinary editor take up this subject and treat it freely. This is

not a case where "ignorance is bliss," but where ignorance is damnable.

W. C. EGAN,
Victim.

HIGHLAND PARK, ILL.

There was a time, years ago, when ignorant bigots burned alleged witches at the stake; when farmers regulated their work according to the signs of the zodiac; when people, plethoric or poverty-stricken in blood, were, with equal copiousness, bled each spring by the village barber. Barbarous indeed were these practical evidences of densest ignorance, but happily they have largely disappeared before the bright light of education and humanity. But some remain, it seems, for, in the foregoing letter, we learn that there are actually people living in this age of education who believe in the myth termed "wolf-in-the-tail"—a relic of the days alluded to and akin in absurdity to the other cruelties and customs mentioned.

The man who believes in "wolf-in-the-tail" condemns himself out of his own mouth as an ignoramus capable of witch-burning, and anyone whose cow he has maltreated by the administration of vile nostrums calculated to clear the caudal appendage of its mysterious parasitic pest, has capital cause to commence a suit for damages or prosecute the offender for cruelty to animals. Strange as it may seem, the progressive State of Illinois refuses to enact a law preventing "wolf-in-the-tail" doctors and similarly qualified quacks from practising their inhuman, destructive profession(?), but our correspondent and other "victims" still have recourse to the Prevention of Cruelty to Animals Society, and should avail themselves of it.

It would seem unnecessary to state in these columns that there is not and never was any such disease as wolf-in-the-tail; that no educated man who knows anything about cattle believes in its existence, or that anyone so ignorant as to believe in it or its first cousin called "hollow-horn," is qualified to prescribe or administer drugs to animals.

Unquestionably the disease our correspondent speaks of as prevailing each spring among newly-calved cows is parturient apoplexy, commonly termed "milk-fever," and the prevalence of the trouble proves conclusively (1) that finely-bred cattle are kept; (2) that they are pampered in warm barns, and (3) that they are overfed upon rich foods. The disease is particularly liable to attack finely-bred cows, such as Jerseys; almost invariably chooses the "deep milkers" as its victims; is unknown among heifers and, as

a rule, afflicts only cows having had three calves. It is a fearfully fatal disease, although a new method of treatment has enabled qualified practitioners to save many patients by aiding nature in her attempts at resuscitation so often rendered futile by ill-directed interference and drugs. It is peculiarly a disease of the plethoric animal, and follows usually an easy labor and prompt expulsion of the afterbirth. Recovered animals are liable to suffer from another attack with their next calf, and in such case almost invariably succumb.

To cure the disease—or, more correctly speaking, assist nature toward a recovery, for nobody but a quack would claim that he personally cured anything—requires the most intelligent application of common-sense ideas based upon practical experience, and the exhibition of drugs indicated by each symptom as it appears, together with properly directed nursing and observation of the laws of hygiene.

Happily, however, the disease may be prevented with almost absolute certainty if a few simple rules are correctly followed. Nature did not intend a cow to live without other exercise than mastication and digestion. Exercise, therefore, is necessary to conserve the health of both the pregnant cow and her fetus. Inaction and warm atmosphere, together with highly nitrogenous and nutritious foods, beget plethora of the blood, obesity, and constipation. Knowing, then, that pure-bred cows of the dairy breeds having had three calves are hereditarily susceptible to “milk-fever,” the aim of the owner and feeder should be to counteract natural tendencies and artificial conditions by treatment based upon nature’s methods. Stated as concisely as possible, then, preventive treatment consists in “drying the cow off” at least six weeks prior to parturition, allowing exercise daily in a yard out of doors, easing the udder of a portion of the milk twice daily, if plentiful, at any time prior to the advent of the calf, and for a period of six weeks before that time cutting down the rations to a simple diet of sound hay and bran-mashes containing sufficient oil-meal to keep the bowels freely open. The last point is the most important, as it means prevention of plethora and constipation, and it will be found that as the tendency to the latter increases a few days prior to parturition it will be necessary to increase the daily allowance of oil-meal; at first merely mix a handful of pure oil-meal in each regular feed, but gradually increase the amount until the cow gets about twice or thrice as much the day or day before calving. Where oil-meal alone does not move the bowels sufficiently, add an ounce or two of epsom

salts dissolved in warm water, and increase the amount just before calving. As soon as the calf comes, and before the afterbirth is expelled, give her a warm mash, very thin, nearly as thin as gruel, made as follows: 4 quarts coarse bran; $\frac{1}{2}$ pint linseed-meal; 1 tablespoonful salt; 1 tablespoonful tincture of arnica, and warm water to suit. If the cow does not clean readily, give her from 4 to 8 quarts of whole oats dry, and if afterward there are premonitory symptoms of "milk-fever," such as restlessness, stepping up and down with hind feet, unsteadiness of gait, etc., give rectal injections of soapy warm water, and twenty drops of tincture of aconite, and repeat aconite in two hours, adding a stimulant.—A. S. ALEXANDER, M.D.C., V.S., Evanston, Ill., in *The Farmers' Review*, Chicago, March 2, 1898.

The *Breeders' Gazette*, Chicago, Ill., asks, for the benefit of cattle-growers, the following questions relative to a type of diarrhœa or scours which has carried off thousands of young calves:

1. Is it a new disease? State how long you have had experience with this fatal form of diarrhœa.
2. What in your opinion is the cause of this disease?
3. Describe the symptoms of the disease. (b) At what age does it appear? (c) How long do calves live? (d) What percentage recover?
4. Give particulars as to foods used and method of feeding the dams of calves that have succumbed to the disease.
5. Does it equally affect the calves of stabled cows and cows exercised daily in winter?
6. Does it equally affect suckling calves and hand-fed calves?
7. Describe the methods of treatment and medicines (a) that have failed, and (b) that have proved beneficial.

The Prussian Government has taken another step against the importation of our meat-products. Provincial authorities are directed to pay especial attention to the inspection of pork and other meats from this country.

It is interesting to observe the weekly increased number of advertisements of noted stock-breeders offering tuberculin-tested stock. This will very soon solve this important question among our breeders and save thousands of dollars annual loss.

REPORTS OF CASES.

ABSCESS OF THE SHEATH OF THE FLEXOR PEDIS
PERFORANS TENDON.BY W. J. MARTIN, V.S.,
KANKAKEE, ILL.

DURING the past winter the patient, a black mare, aged twelve years, used for farm purposes, was kicked by another horse upon the internal posterior surface of the right hock-joint, midway between the summit of the calcaneum and its base and directly over the tendon of the flexor pedis perforans muscle. The calk of the shoe which inflicted the injury being very blunt, but a slight wound was made. The owner considering the wound of not much importance, did nothing but apply some simple healing-salve, expecting that in a few days the wound would heal. After the expiration of several weeks, the injury not being inclined to heal and the mare being slightly lame, I was requested to visit her.

On examination the joint was found to be but slightly swollen upon its internal surface; at the point of the injury a smooth fistulous opening, surrounded by a rim of fungoid tissue, was seen. The external surface of the joint was somewhat thickened and indurated. As near as I could learn, nothing resembling synovial fluid had been discharged from the fistulous opening. The discharge consisted, the owner stated, of a small amount of bloody water. Lameness was not very marked; in standing the mare seemed to bear considerable weight upon the limb. The physical condition of the animal was good, the appetite not being in the least impaired.

Owing to the length of time since the infliction of the injury, a guarded prognosis was given, pointing out to the owner the probability of acute arthritis or synovitis setting in at any time and destroying the structure of the joint.

The treatment adopted was of the mild and expectant order, such as absolute rest in a stall, the inunction of camphorated oil around the joint, and directly over the fistulous opening was smeared a mild compound ointment of iodine. Under this method of treatment the mare seemed to improve rapidly, and after the expiration of three weeks nearly all lameness and swelling of the joint had disappeared. The fistulous tract, however, still remained open and discharged but a small quantity of a clear watery fluid.

So confident had the owner become that the mare was about well that he began to give her walking exercise and to use oxide-of-zinc ointment to heal the "pipe" in the joint. After using this ointment for a week or ten days the joint suddenly began to swell and the mare became very lame. The owner then placed the mare in a sleigh and brought her to my infirmary, a distance of fourteen miles.

Upon her arrival the leg presented the following condition: The internal surface of the hock-joint over the course of the flexor pedis perforans muscle was enormously swollen and indurated; this swelling surmounted the point of the calcaneum, forming an exaggerated capped hock. The external aspect of the hock was also enlarged and indurated. The anterior surface of the hock was not enlarged save for a slight distention of fluid at the seat of bog-spavin. Otherwise this part of the joint was in a perfectly normal condition. The old fistulous opening was now much larger than formerly, and from it was discharged a considerable amount of bloody watery fluid. The lameness was most severe, the animal barely placing the foot to the ground for a moment, then quickly catch it up again. The appetite was still good, and her bodily condition was fair.

The joint now presented nearly every indication of being the seat of extensive articular arthritis, yet some very essential symptoms of this affection were wanting, such as the absence of all swelling and inflammatory action in the anterior part of the joint. Also the excellent physical condition in the mare showed the absence of all irritative fever, etc.

I must confess that in all my experience with diseases of the hock-joint, none had ever perplexed me in trying to locate the exact nature and extent of the disease as this case had done. All the literature at my command was ransacked for information of a similar case, but in vain.

The treatment adopted was of the most energetic kind; the fistulous opening was enlarged and thoroughly curetted; Lugol's solution of iodine was then injected into the cavity; the entire joint was bathed with camphorated oil, then swathed in cotton and a roller bandage applied. This method of treatment was kept up, supplemented from time to time by the application of severe blisters over the diseased area. Iodide of potassium in drachm doses was given in the drinking-water three times a day. Under this form of medication the old fistulous opening healed, as did a new one that formed and broke just above the seat of the old one. This

treatment was continued for a month. The enlargement on the internal surface of the joint had become somewhat smaller, but the lameness still remained. After the expiration of another two weeks, all hope of curing the severe lameness which still persisted, the animal was ordered to be destroyed.

Post-mortem. At a point about three inches below the fleshy belly of the flexor pedis perforans muscle the tendinous seat of the muscle was found to be greatly distended with a reddish-colored, watery fluid, in which were floating particles of the broken-down débris of the enveloping sheath and adjacent tissue. The pouch or cavity was almost exactly six inches in length, and included the entire surrounding sheath of the tendon. The inner surface of the trochlea of the astragalus was stained a dark-blue color; the capsular ligament of the hock was not diseased; the synovial fluid was perfectly normal in appearance. The connective tissue on the external part of the joint was thickened and indurated. The dark color of the trochlea of the astragalus, no doubt, was due to the permeation of the reddish fluid through the intervening tissues by osmosis.

Had the true nature of the injury been detected during life, and had the treatment been that of aspiration of the fluid in the sheath, or, better still, if the entire sheath of the tendon had been laid open the entire length of the diseased area and then dressed antiseptically, a good recovery might have been made.

REPORTS OF ODD CASES.

By E. L. QUITMAN, M.D.C.,

PROFESSOR OF MATERIA MEDICA, THERAPEUTICS, AND TOXICOLOGY, CHICAGO VETERINARY COLLEGE, CHICAGO, ILL.

A MERE synopsis of the following cases can only be given, as specific data were not kept. But as they are all unique, I trust they will be interesting:

CASE I. occurred about five years ago; a bay mare, between twelve and fourteen years of age, was first noticed by her owner (a physician) to be very sensitive about her neck; flies seemed to irritate her much more than usual, and she would shrink and show considerable pain upon the skin of the neck being stroked with the hand, which he attributed to the irritation of flies. Upon noticing this he protected the neck with a fly-sheet, but in spite of this precaution the mare grew worse, so much so that when I was called

in the slightest touch upon the neck would cause rapid and involuntary raising and lowering of the *hind* leg of the opposite side, and a slight or persistent pressure would cause the animal to fall in a tetanic spasm, lasting from a minute to about five minutes. After the convulsions she would lie motionless for about two minutes, then regain her feet. At the time I was called in her pupils remained dilated, thus interfering with her sight, and she was more nervous than normally; appetite good.

Diagnosis. Hyperæsthesia, due to some central nervous trouble.

Treatment. Put her on gelsemium and bromide of potash internally, and locally used a wash containing hydrocyanic acid, which had to be applied with an atomizer, as she could not stand the slightest touch without falling in convulsions.

This treatment was persisted in for about two weeks, the doses being increased until they were enormous; but to no avail. After this length of time I prescribed the following:

R.—Iod. resub.	. . . . .	℥iij.
Potas. iod.	. . . . .	℥jss.
Aq.	. . . . .	℥xij.—M.

Sig.—One ounce three times daily in four or five ounces of water on an empty stomach.

Five days after the commencement of this treatment there was marked improvement, and at the end of two weeks from its commencement the mare was discharged as cured. She was then put back to her regular work, continuing in this for about three months (until about October), when she again started to show the symptoms already described.

The owner not caring to bother with her any more, at my request allowed me to remove her to the Chicago Veterinary College, where she was kept for some time and used as a clinical subject.

She was kept there, as near as I remember, for about six weeks, when she was destroyed.

Postmortem revealed all visceral organs in a normal condition, the generative organs being very carefully examined, as it was suggested that possibly the ovaries might be the cause of the trouble; they, however, were perfectly normal.

The lesions found were as follows: Great effusion into the *cervical* meningeal spaces due, of course, to a chronic meningitis of that region, and in the atlo-axoid space there was found a stellate fibro-granular tumor (if it may be so termed) that seemed to blend with the dura mater.

This tumor, to the eye, seemed to consist of a coarse fibrous mesh-

work with a granular or sandy, lumpy material interspersed in the meshes.

Thus it can be seen from its location it was the primary cause of the trouble—*i. e.*, from pressure upon the meninges and interference with the circulation it set up a subacute and thence chronic meningitis.

The brain showed very slight effusion into the central ventricle.

CASE II. *Hemorrhage from the lungs that persisted for about thirty-six hours, terminating in death.*—This was a large, phlegmatic draught-horse, about fifteen years old; had always been very healthy. Administered various drugs, such as ergot, gallic acid, lead acetate, etc., even injecting a small quantity of diluted Monsell's solution into the trachea.

The interesting feature of this case was that the blood lacked the fibrin-forming ferments, *and did not clot* (hæmatolysis). I kept some of it in a bucket for several days, using different means to make it clot, but it remained in a fluid state.

CASE III.—A bay draught-horse, seven or eight years old, weighing about 1500 pounds, came in one evening with slight superficial bleeding from the sheath. The driver upon being asked regarding its occurrence, stated that the horse had made a spread-eagle slip, but got up and went along all right.

I thought but little of the case and prescribed an astringent antiseptic wash, expecting to hear no more of it. Was called the next morning and found the sheath enormously swollen, so much so that it could hardly have been contained in a bushel-basket, and with but little abnormal heat; naturally the animal urinated in the sheath.

There being but little abnormal heat, and the parts not being painful, I excluded septic and inflammatory conditions and made a diagnosis of rupture of bloodvessels. I treated the parts locally with various measures—hot bathing, cold bathing, astringent applications, etc., and iodine and iodide of potassium internally for about two or three weeks, when out of desperation I made up my mind to use the knife. I made large incision into the sheath, finding it very cedematous. Not being satisfied with this, and finding the penis greatly enlarged and having a peculiar feel, I made an incision deep into it, from which a dark-colored serum started to ooze; thence upon pressure a clot came. I now enlarged the opening enough to admit my whole hand, and was amazed at what I found. I removed three-fourths of a water-bucketful of blood-clot and serum, finding the urethra completely macerated away from its surrounding tissues, from the end of the penis to the pubis; after all

clots were removed I flushed the parts thoroughly with an antiseptic solution and continued antiseptic treatment. After a reasonable time, much quicker than expected, the animal was returned to his work.

CASE IV.—A bay gelding, eight years old, had been for about seven or eight months in a very emaciated condition; appetite good; teeth in first-class condition.

I had prescribed tonics and diets of all kinds for him; treatment had been persisted in for a considerable length of time, but without improving him in the least. Pulse a little weaker and faster than normal, which I attributed to his debility. No elevation of temperature. Had practically given up the case, when one evening I was called in a hurry to the horse in question; found him with a bad case of flatulent colic; ordered him brought out of the box-stall; when upon reaching the floor he suddenly stopped, braced himself, showed great anxiety, and with great force vomited about two quarts of matter from his stomach. Upon examination I found the vomited matter to be about one-half *pus* and *blood*.

Inasmuch as his pulse immediately ran down, I made an unfavorable prognosis, but prescribed appropriate remedies, and was surprised to have him recover, and, more, he began almost immediately to gain flesh, and in the short time of three or four weeks was in excellent flesh, even fat.

His trouble was undoubtedly due to a submucous or intermuscular abscess of the stomach.

CASE V.—Was hurriedly called to a mule, but did not arrive until about two hours after he had taken sick.

History. I was told that the mule first showed considerable nervousness and anxiety, but *was not bloated*; finally he commenced to vomit, which continued for about three-quarters of an hour at short intervals.

I found the mule free from pain and flatulence, deathly cold; pulse almost imperceptible; mucous membranes blanched, and temperature two degrees subnormal (taken with a Hicks certified thermometer), and the animal trembling violently.

I naturally considered it a rupture of the stomach and a hopeless case; but was asked to prescribe, which I did, as follows, on general principles. Gave a hypodermic injection of spirits of glonoin \mathfrak{z} ij (1 per cent.) and then

R.—Tr. arnica rad.	.	.	.	.	.	.	\mathfrak{z} ij.
Fl. ex. pilocarpin	.	.	.	.	.	.	\mathfrak{z} ij.
Spts. aeth. nit.	.	.	.	.	.	.	\mathfrak{z} ij.—M.

Sig.—Give one-half at a dose in a pint of water, and repeat in one hour.

I gave this mixture with the intention of dilating the cuticular bloodvessels, attracting the blood to the surface, and thus equalizing the circulation, following this up with a powerfully stimulating and diaphoretic mixture, the exact ingredients of which I do not recall. The mule recovered.

What ailed him? Was it a congestive chill; if so, what caused the vomiting? Was it a rupture of the mucous coat of the stomach; if so, how do you account for it without distention of that organ? I should add that he had been standing in the stable for a whole day, and the evidence of his not having been bloated is attested to by his owner and two hostlers.

CASE VI.—A fox-terrier dog got away from its owner for a short time (fifteen or twenty minutes), when he returned he seemed weak, and the next day blood was seen dripping from his penis. This condition persisted for a week, when I was called in.

Found the dog weak; mucous membrane pale; blood of arterial origin, coming from the urethral canal.

No history as to its cause; probably due to injury received during copulation, or possibly was run over by a bicycle.

Diagnosed a rupture of the urethra and corpus spongiosum; for had the hemorrhage been due to injury of the kidneys or bladder, it would have been ejected only during urination; but in this case there was a constant dribbling. Prescribed

R.—Ext. ergotæ fl.	. . . . .	3ijj.
Ac. gallici	. . . . .	3ss.
Ext. hamamel. fl.	. . . . .	3vj
Syr. aurantii cort.	}	āā qs. ad. 3iij.—M.
Syr. glycyrrhizæ		

Sig.—Two teaspoonfuls every two or three hours.

Locally. Injection of a mild alum solution and bathing with cold water. The bleeding stopped in thirty-six hours, with no ill results.

CLINICAL NOTES FROM THE MCKILLIP VETERINARY COLLEGE, CHICAGO, ILL.

STAPHYLO TOMY. It was demonstrated at a surgical clinic at this college that the guttural pouches containing pus are best reached through the fauces.

The patient was placed in the dorsal position, and the hand containing a guarded bistoury was passed through the fauces into the pharynx, and an incision made in the median line. The pouches,

containing two pints of inspissated pus, were emptied and the patient—a large draught horse—made an immediate and lasting recovery.

A tracheotomy tube was inserted to prevent asphyxiation and as a means of flushing the upper air-passages after the operation.

MALLEIN. The conclusions of Prof. Nocard as to the therapeutic value of mallein were confirmed by a series of experiments on four hundred glandered horses by Dr. J. M. Wright, of this college. Outdoor exercise, healthful surroundings, and periodical injections of mallein repeatedly cured cases not clinically developed.

CLINICAL NOTES.

BY HUGH THOMPSON, V.S.,
SHABBONA, ILLINOIS.

CASE I.—Gray draught mare, nine years old, weight 1400 pounds. Had foaled six hours before, and afterbirth had not followed. Removed the foetal envelopes in about twenty minutes without difficulty, after which I gave her hypodermatically two grains of morphine, to prevent straining and to quiet any after-pains—a plan which I have followed for many years. The animal did well, and in about a week the owner put her into a cultivator and cultivated corn for two days. As she was turned out when not at work, and the day following her work in the cultivator was a rainy one, when she was taken up in the evening and put in the barn nothing specially was noted; she ate her evening ration of four quarts of oats and some hay, but the next morning ate very little, and refused her feed entirely the following two days. The owner, determining that something was wrong with her bladder, placed salt in the vaginal cavity, which was followed by violent straining and colicky pains. As the mare grew worse, I was summoned to see her. Found her bedewed with a cold sweat over the whole body, an anxious expression of countenance, and continually elevated the upper lip; the head, ears, legs, and hips cold; body on sides warm. Three blankets had been placed on her. Pulse almost imperceptible at the jaw; temperature normal; trembling of muscles of the shoulder, and forelimbs. Vulva, vaginal and rectal mucous membrane swollen and infiltrated; considerable straining, with three small passages of feces in five minutes.

Treatment. Gave stimulants of digitaline and nitroglycerine hypodermatically, and a little later, three grains of morphine. I injected the bowel with warm milk containing two drachms of car-

bolic acid, which was retained, and seemed to control straining. The mare lived just two hours after I reached her. Would like to know if the irritation and inflammation produced by the salt, producing shock, was the cause of death?

[The history indicates the presence of peritonitis, which was aggravated by the treatment applied by the owner.—EDITOR.]

CASE II.—Bay draught horse, six years old, weight 1500 pounds, suffering with severe flatulent colic, with excessive gaseous distention and intense pain. Fifteen grains of barium chloride were injected intravenously, which in a few minutes was followed by the passage of flatus, which continued irregularly for two hours, when the abdomen had become about normal in size. No feces were passed, and, fearing a return of the flatulence, gave a ball containing two drachms of aloin, one drachm of calomel, which produced purgation in eighteen hours, and continued for two days, when the owner, becoming alarmed, came to my office and reported the condition as well as a noticeable stiffness. I prescribed a mixture of tincture of opium, camphor, and turpentine, which controlled the purgation, and visited the horse the following day, as he was reported as breathing hard and not eating. Found the horse standing with his head pressed against the wall, badly bruised, forelimbs working continually; pulse at submaxillary imperceptible; artery felt like a piece of thread; vacant, staring expression; temperature, 103.5° ; ears and legs cold, the former lopped; bowels had moved but once the preceding day. Unable to back him, and when efforts were made to raise the head, he pushed forward with all his strength. By placing a halter rope on each side of the stall, and the aid of several assistants, we were able to back him. After securing him he continued to press forward and continually moved the front limbs.

Treatment. Cannabis indica, digitalis, and salicylate of soda were successfully administered, which, in twenty minutes, was followed by quietude, hanging of the head, eye brighter; movements of the limbs ceased, and remained in this condition for two hours, when he fell. Gave him one-half grain each of strychnine and nitro-glycerine hypodermatically, which seemed to rouse him up somewhat, but death followed in a few hours. The writer would like to know if these were not unusual symptoms following super-purgation? This was my first case of the latter following the treatment as above described, which plan, where the barium chloride fails to bring any feces, I have followed with a ball of aloin and calomel.

[The condition described was such as would follow prolonged purgation, with the excessive irritation of the gastro-intestinal tract, and the subsequent disturbance of the nerve centres of the brain and spinal cord.—EDITOR.]

CASE III.—A case of atrophy of the shoulder muscles, where one-half grain of strychnine was injected hypodermatically in the postea spinatus muscle, and repeated at night, and the following morning three-fourths of a grain given, which was followed by acute symptoms of strychnine poisoning, violent spasmodic contraction of the muscles, throwing the horse from his feet to the ground. Intratracheal injections of one drachm of potassium iodide and three grains of sulphate of morphine caused relaxation of the muscles and gradual recovery from the symptoms. The subject was a grade Norman, four years old, and weighed about 1300 pounds. The writer has used strychnine in half-grain doses for several years in atrophied shoulders, and is at a loss to know why the increased quarter of a grain should have produced the symptoms described.

[Strychnine is a remedy that should always be used with the greatest caution, particularly in ascending doses. The great difference in the susceptibility of animals is one factor; idiosyncrasies of certain patients; the age and quality of the drug vary much, and its solubility in tablet-form is variable.—EDITOR.]

Dr. L. R. Webber, Rochester, N. Y., reports a case of influenza in a bay mare, discharged some two days before as convalescent, showing on April 26th facial, nasal, tracheal, breast, thigh, and very marked swellings of the forelimbs, especially of the knee-joints; anorexia, pulse 56, and temperature 105°. Diagnosis: Purpura hemorrhagica; recommended antistreptococcus serum. Placed animal in infirmary on the 26th, clipped hair from neck and shoulders, and washed the parts with 1:500 bichloride solution, then injected 30 c.c. in three doses of 10 c.c. each at three points. At night she ate some oats and bran. On the 27th the pulse was 48, temperature 103°, swellings diminished; repeated same amount of serum. On the 28th the pulse was 42, temperature 100°, swellings much reduced, appetite good; repeated the same amount, 30 c.c. On the 29th the pulse was 40, temperature 100°; swellings of the body had disappeared. Having purchased 100 c.c., gave the remaining 10 c.c.; vegetable and mineral tonics were given along. On May 1st the swellings began to return, appetite

diminished, mucous membranes became more discolored, and I obtained 100 c.c. of serum and gave 30 c.c. the first day, 20 c.c. the next two days, with a continued abatement of all the symptoms. On May 11th the swellings had all disappeared, appetite good, pulse and temperature normal, and only a slightly injected condition of nasal mucous membrane. In all 170 c.c. were given.

FRACTURE OF PENIS; AMPUTATION; RECOVERY.

BY N. B. SMITH, D.V.M.,

BASIL, OHIO.

IN the March issue of your valued JOURNAL I noticed the report of a case of fracture of the penis in a bull. As I had a similar case, I concluded to submit it to your readers, thinking it might be of interest to them.

Subject. A five-year-old Jersey bull.

History. I know but very little in regard to the history. When the animal was first seen by its owner, the penis was protruding about three inches, with the sheath in a swollen condition. Three days after I was called, this being June 14, 1897. I found the animal in a stable with sheath terribly swollen, with penis hanging down, and gangrene having already set in. I then cast the animal and after an examination found that amputation was the only resort. The penis was so swollen I could neither replace nor withdraw it.

Operation. I split the sheath and prepuce open, and then had assistant draw out the penis, which I found broken up, about four inches suppurating, and the whole sheath filled with maggots. To get above the diseased tissue I had to amputate eight inches of the penis, which I did by ligaturing above the seat of operation, in order to prevent hemorrhage. I then dissected out the urethra, leaving it a quarter of an inch longer than where the penis was amputated, to prevent stricture of same when healed. Amputated with knife; ligated the arteries, removed ligature above amputation; cleansed well with carbolyzed solution; filled the wound with boric acid. I then let the animal up and had him tied up in the stable, and the wound washed daily with carbolyzed solution, after which he made a complete recovery. While he is of no service whatever as a breeder, yet I think this a remarkable case, considering the length of time the case had gone, the condition I found it in, the extremely hot weather, and the lax way a farmer usually follows your instructions. During the whole period I only made the one visit.

AMONG THE PROFESSION IN ILLINOIS.

Prof. James M. Wright, of McKillip Veterinary College, has been appointed comparative pathologist for the Academy of Science of Chicago.

Dr. E. L. Quitman, of Chicago, considers a carefully adjusted mouth one of the fine arts of veterinary surgery.

Dr. F. S. Schoenleber, of Chicago, says that a graduate not well-drilled or equipped in anatomy will never make a good surgeon or a successful practitioner.

Dr. F. T. McMahon, of the McKillip Veterinary College, fully realizes the importance of a thorough course in meat- and milk-inspection in these advancing times.

Dr. A. H. Baker, of Chicago, scans daily the rise and fall of the stock-market, and takes keen interest in the present advance in price and demand for black diamonds.

Dr. L. A. Merillat, of McKillip Veterinary College, has secured the position of veterinary inspector for the purchase of army horses at the Chicago market.

Dr. C. H. Zink, a Philadelphian, was so enthusiastic over the charms of the "Windy City" that the ink was scarcely dry upon his sheepskin, obtained at McGill University, Montreal, before he hied himself to the city of his adoption.

Dr. James Robertson, of Chicago, associates with his work that of horseshoeing, and takes a keen interest in all advances in the shoeing art.

Dr. James M. Wright, of Chicago, finds the attractions of canine practice the chief end of his veterinary studies and professional employment.

Dr. M. R. Trumbower, of Sterling, after years of labor in the field of comparative medicine, has finally drifted into the specialty of human medicine, where he hopes for larger fees and greater renown.

Dr. L. A. Merillat, of Chicago, gives much time and attention to veterinary dentistry, and his contributions to the study of this subject have proven of much interest.

Dr. C. A. White, of Chicago, fills the rôle of assistant to Dr. Joseph Hughes, of the Chicago Veterinary College.

Dr. John B. Boomer, graduate of the McKillip Veterinary College, class of 1897, is one of the practising staff of the hospital of that institution.

Dr. S. S. Baker, of Chicago, finds time from the exacting duties of routine practice to indulge in association privileges, and is a regular at State Association conventions.

Dr. A. E. Flowers, Professor of Dental Surgery at the Chicago Veterinary College, fills the rôle of professor of comparative anatomy in the Northwestern University.

Dr. Charles L. Widmeyer, graduate of Ontario Veterinary College, class of 1894, holds a position on the practical staff of instructors of McKillip Veterinary College.

Dr. A. S. Nesbitt, a graduate of the class of 1894, of the Chicago Veterinary College, holds the position of assistant to Prof. A. H. Baker, of that institution.

Dr. Joseph Hughes, of Chicago, finds no part of his work more enjoyable than the selection of a saddle-horse.

Dr. A. S. Alexander, of Evanston, finds recreation and enjoyment in answering veterinary queries through the columns of the *Breeders' Gazette*.

Dr. W. S. Devoe, of Chicago, finds but one attraction in the veterinary world, and that is the search for contagious and infectious diseases.

Dr. W. J. Martin, of Kankakee, finds his keenest delight in searching out the mysteries of some intricate and unusual case.

Dr. B. A. Pierce, of Chicago, finds the running down of glandered horses a serious task at times.

Dr. Albert Babb, of Springfield, finds association work congenial, and has been a strong factor in the growth of State association.

Dr. John Casewell, of Chicago, yearns for the return of State work, which for many years formed the most enjoyable part of his occupation.

Dr. G. W. Turner, of Highwood, finds army duties congenial, but yearns for the time when the veterinarian will be accorded rank and be made a commissioned officer.

Dr. R. J. Withers, formerly of Chicago, has never found the shores of California as congenial a resting-place as the "Windy City."

Dr. Louis P. Cook, of East St. Louis, has not satisfied himself yet as to whether the soil of Illinois will be as congenial as that of the Empire State, from which he recently moved.

Dr. Harri H. Dell, of Sullivan, was a strong association member at College, and it is to be hoped will be equally zealous in the "Prairie State," where he located after graduation.

Dr. B. A. Pierce, Assistant State Veterinarian, represents the State Board of Agriculture for inspection of all horses consigned for sale.

Dr. Lawrence Campbell, of Chicago, could not long remain out of the harness of secretary, which is so congenial to his tastes, and in which he has displayed marked ability.

Dr. C. E. Hollingsworth, of La Salle, is an active association member and a frequent contributor to the programme.

Farmer Miles, of Princeton, makes fewer pilgrimages over the country than he did some years ago.

Dr. Eugene Sullivan, of Chicago, considers the official work as city veterinarian a special opportunity for demonstrating the great need of veterinary services for the care of the city livestock.

Dr. D. J. McIntosh, of Urbana, finds the study of the diseases of the porcine tribe specially interesting.

Dr. M. H. McKillip, of Chicago, finds special methods of surgery attractive and specially applicable in veterinary practice.

Dr. H. W. Hawley, of Chicago, thinks that the vision of many veterinary surgeons is too acute when passing upon the imperfections and soundness of the horse.

Dr. Hugh Thompson, formerly of Manhattan, has now located at Shabbona.

THE PRAIRIE STATE VETERINARY COLLEGES

THE Chicago Veterinary College was established in 1883. It is chartered by the State. Dr. R. J. Withers still holds the position of President of the Board of Trustees.

Dr. A. H. Baker fills the important chairs of professor of theory and practice, surgery, obstetrics, and physiology.

Dr. James Henderson, who recently left Chicago for Scotland, filled the chairs of cattle-pathology and meat- and milk-inspection.

The school graduated its 15th class this year. It has now 545 graduates in active practice. Some 35 of her graduates have held or are holding official positions in connection with State colleges, State and National veterinary sanitary and inspection work; 10 of her graduates have died since the school opened.

The school is a private institution, being owned entirely by three members of the faculty. It for many years maintained a course of two years of six months each, but for the past three years the curriculum has been extended to require three years of six months each.

The McKillip Veterinary College was chartered in 1892. This school is also a private institution, maintained and owned by its founder, Dr. M. H. McKillip. Its buildings are splendidly arranged with ample laboratories for teaching, and its facilities for conveying practical knowledge unsurpassed by any of the schools. The clinical facilities afforded are unusually good, and in extent cover one of the largest private practices in this country.

From its inception this school has maintained a three-years' course of six months each. Its first course of instruction was given in the fall of 1894. About fifty students have matriculated at the college since its opening. The first class of graduates, numbering ten, were sent forth in 1897, while the list of graduates for 1898 number nine. The practical staff of instructors of the institution are five in number.

The State University, at Champaign, maintains a veterinary chair of instruction, which is filled by Dr. D. J. McIntosh. The usual short course of veterinary science intended for agricultural students is maintained. During the past year there has been much agitation looking to the establishment of a veterinary department of this university. It has been strongly urged by such influential papers as the *Breeders' Gazette*, and the State Legislature has been urged to make the necessary appropriation. Such an institution would, no doubt, be given greater security so far as perpetuation is concerned, but many Western State universities are so thoroughly under political control and direction that able and efficient corps of instructors are difficult to obtain and hard to retain under such conditions. We should be glad to see one of the schools of Chicago identified with the Chicago or Northwestern University, where their more complete and enlarged maintenance would be doubly

assured without wholly depending upon their incomes from students' fees to gauge the course of instruction. Such a department would no doubt in time be largely endowed by some of those who have grown so rich in the various branches of the livestock industry, so largely contributed to by the veterinary profession, and whose successful maintenance and advance grows daily more dependent upon the practitioners of comparative medical science.* We trust that the agitation already started will continue until this much-to-be-desired end is assured.

ILLINOIS ASSOCIATIONS.

Illinois State Veterinary Medical Association. Officers: President, Albert Babb, Springfield; Vice-President, W. J. Martin, Kankakee; Treasurer, R. G. Walker, Chicago; Secretary, S. S. Baker, Chicago. Meeting, Chicago, at call of the President.

Chicago Veterinary Society. Officers: President, Robert G. Walker; First Vice-President, Lawrence Campbell; Second Vice-President, A. E. Flowers; Third Vice-President, A. Worms; Treasurer, G. E. McEvers; Secretary, Lawrence Campbell. Meetings monthly.

ABOUT ILLINOIS STATE LAWS.

Diseases of horses and cattle only are provided for in State sanitary work. State Veterinarian Lovejoy strongly urges the extension of the laws to cover sheep, swine, and poultry.

Mallein has been extensively used during the past year in efforts to control glanders, by endeavoring to eliminate the obscure cases.

Chicago furnishes the largest number of glandered horses of the cities, while the southern section of the State is very prolific in these cases.

Of cattle inspected and condemned, about 9 per cent. seem to be affected with tuberculosis.

Lack of sufficient appropriation hampers the work in the "Prairie State." A conservative estimate places the loss from tuberculosis at about \$90,000 per year. Surely a very unnecessary burden upon those engaged in the livestock industry.

A law is badly needed prohibiting the importation of cattle into the dairy and breeding districts without subjecting them to the tuberculin-test.

An appropriation of \$25,000 a year, well expended, would soon make this a disease little known in Illinois. Members of the State Legislature should be made to look this question fairly in the face.

A more liberal education of the stockgrowers upon this question is very essential, and in these days when valuable literature on the subject is so abundant one would expect much progress. Every veterinarian should do some missionary work in this direction.

More of the cities should inaugurate the plan of demanding a certificate showing freedom from tuberculosis of the cattle supplying milk to these centres. This is an important line of work for every veterinarian.

Chicago should lead, not follow, this plan now adopted in a number of cities. A city so densely populated cannot afford to be without this safeguard for her people. Strengthen Commissioner of Health Reynolds' hands, and this will soon follow. The Chicago Veterinary Society can do much in this direction.

A law is wanted throughout the entire State compelling the removal of all milk-tanks and houses a proper distance from the cow-sheds and barns.

With so many assistant State veterinarians a police system of the State could be readily maintained, and thousands of dollars saved to her people at an expenditure of hundreds.

WHAT ILLINOIS VETERINARIANS NEED.

Higher recognition of the value and worth of a diploma, and the education that such carries with it.

Better compensation for contract work and less of this done for inadequate sums, with the dependence upon the value of support of certain firms as an advertisement.

A higher recognition by the State and cities of the value of a veterinary degree, and of the better education of those with college training.

Closer community of those better-educated members of the profession, and the sustaining of the dignity of the calling on a proper basis.

Those who are best able to pay should be the ones that should lead in their compensations of veterinarians, while the single-horse owner should bear proportionately less burden.

Capital invested in livestock should not be treated from a charitable standpoint.

The State possesses two regular, recognized veterinary colleges,

and these should set the pace for the advance of the veterinary profession all along the lines by the highest examples of the importance and value of a veterinary education.

More local associations over the State at centres easy of access to local members of the profession.

An increased membership in their State organization.

To increase their contributions to veterinary literature.

The Chicago Civil Service Board to be more aggressive in enforcing existing legislation as it applies to the public employment of veterinarians.

A State Board of Registration of all veterinarians. A high license fee, to afford means for vigorously enforcing such a law.

A larger membership in the U. S. V. M. A.

A CARD OF A "WINDY CITY" SPECIALIST.

J— R— Veterinary Surgeon and Horse Hospital Infirmary.
All Diseases of the Horse Successfully Treated Or No Pay.

I will give a written guarantee that a horse will never go lame on my shoeing. Moreover, I will cure by this discovery or secret all the following-named infirmities of the horse's feet, or no pay, by simply restoring the hoofs to their normal form, natural size, leveling, simitrising, and balancing the foundation of the horse, the *padal bone*, so as to give the indispensable right position of joints to prevent and cure Spavin, Ringbone, Splints, Enlargements of the Heels, Corns, Stringhalt, Knuckling, Curbs, Sprains of Tendons, Windgalls, Acute Liminitis, Founder, Knee-sprung, Contraction, all Crack-Hoof, Toroughpin, navicular Disease, Cutting, Overreaching, Interfering. I will send an ambulance for horses that are too sick to walk. Telephone —.

HORSE-SHOER.

Durland's Riding Academy, in New York, has just closed one of the most successful years in its history. The receipts exceed those of 1897 by \$20,000. The number of saddle-horses in demand is greater than for many years, and higher quality is demanded. The bicycle has been no small factor in creating this changed condition by teaching thousands the pleasure and enjoyment of outdoor sport. Surely, blessings come forth from surprising sources.

EDITORIAL.

WHAT WILL THE VETERINARIANS OF ILLINOIS DO?

THE need of one strong movement of the veterinarians over the land for recognition with rank of our army veterinarians will bring the desired end. Of the thousands of men to-day with their respective regiments in active service, the veterinarian stands alone as one who cannot look for promotion, emoluments, or provisions for wounds, disabilities, or his family's needs in case of his death. Two regimental veterinarians have been killed in active service on the frontier, and their families were allowed to suffer by a wealthy government, while the widows and children of the officers and privates are bountifully provided for. Two of the present army veterinarians now en route for Cuba have a record of over thirty-five years' service, and ought to be at home enjoying their old age with their families on a liberal pension instead of being forced by necessity to encounter hardships and privations which even young men naturally dread.

In addition, there are over twenty thousand valuable animals in active service without any veterinary attendance.

Surely this state of affairs should not exist any longer. Spain had her commissioned veterinarians in our country during the past six months selecting horses and mules, and our own country stands alone in the civilized world with such a state of affairs existing.

The people of our country do not mean that this state of affairs should exist, and if every veterinarian will now do his duty it will end this unjust reflection on our profession. Pennsylvania will raise two hundred dollars at once for the purpose of making battle for our colleagues in the army. Illinois is strong in good earnest members of the profession, strong in college and association circles, and we ask of her six hundred and more devotees of the profession which this issue of the JOURNAL reaches, WHAT WILL HER VETERINARIANS DO?

ILLINOIS' OPPORTUNITY.

THE Prairie State has nearly six hundred veterinarians within her borders. Every college of North America and several foreign schools are represented among her number. These veterinarians are not taxed for their occupation, and a large proportion have

remunerative practice. Her State is without adequate legislation in many directions ; her cities and towns are ill protected with such legislation as would indicate a proper sanitary police system. The State annually loses \$100,000 from bovine tuberculosis ; an equal amount from glanders ; while actinomycosis and many diseases among her sheep, swine, and poultry add thousands of dollars of loss to her livestock industry. A tax of one dollar annually upon each veterinarian would raise such a fund that these facts and these conditions could be presented so forcibly to her people and her legislators that four years of active work would make that State a centre of wise and broad-gauged veterinary sanitary legislation, and an influence throughout the West that would multiply good legislation in every direction and make Illinois the State of States for every other to fashion its legislation after.

This number of the JOURNAL reaches every one of this entire number, and it speaks to you for your district. Will you lead in the movement for your section ? Will you give your assistance to this project ?

POINTS IN REGARD TO ARMY LEGISLATION.

Pennsylvania has pledged herself to raise two hundred dollars for expenses of representatives at Washington in the interest of those of our colleagues in the army who are without rank.

Mr. Daniel O'Driscoll, of Washington, D. C., represents in a measure the army veterinarians. It might be a good point for the President of the U. S. V. M. A. to delegate the senior editor of the JOURNAL, Dr. Huidekoper, for special services in this direction.

Hon. James Wilson, Secretary of Agriculture, is much interested in the recognition of the veterinarian in the army, and has expressed himself through public journals strongly in favor of the movement destined to give the army veterinarian rank.

Army veterinarians of ten years' service should certainly have much accorded them by reason of this period, when the same has been satisfactory.

Dr. J. P. Turner, of the Sixth United States Cavalry and member of the Army Legislative Committee, has resigned from the service, taken the civil-service examination, and entered the meat-inspection service, and has been assigned to duty at St. Louis, Mo.

Information reaches us that many farriers and other insufficiently educated men are being assigned to perform veterinary services in

the rapidly increasing army. Surely this is heaping insult upon insult to a profession that has rendered such important work for our government. Have the authorities at Washington forgotten that the veterinary profession of this country enabled our government to stamp out contagious pleuro-pneumonia, el dourine, and are rapidly developing plans for the radical control of bovine tuberculosis and hog-cholera? Ingratitude is the highest offence our governing authorities could return for such labors and results.

Dr. D. E. SALMON's presentation, in the Department of Agriculture's year-book, of the work done by the veterinary division of the Bureau of Animal Industry is filled with interesting data marking the progress and development of this department and demonstrating its importance to the welfare of those engaged in the pursuits of animal industry. He well says that this is one division of national public work that has saved and returned thousands of dollars to our people for hundreds expended. Every veterinarian in the land, especially in Illinois, where the great central slaughtering-houses are located, with their meat-inspection service, should read this excellent presentation of the subject carefully, and he will find himself better equipped to advance the best reasons why this inspection service should be carried out along all the lines of food-products gathered from our animal husbandry. Dr. Salmon well sustains the confidence of the profession as its chief in this work of our national government, and should continue to receive their warm support in the broadening of this all-important work.

THE official report of the National Stock-growers' convention held at Denver, Col., in January last, has been received. It is its first report, but the vigor with which this movement was inaugurated is best told by the excellent reproduction of its proceedings in permanent form, and the scope of its work best understood by a perusal of the various aspects of its labors in the table of contents, including quarantine laws, railway transportation, tariff measures, diseases, laws of brands, foreign markets, etc.

ANOTHER ASPIRANT FOR VETERINARY FAME—FOOLS RUSH
IN WHERE ANGELS FEAR TO TREAD.

S——, INDIANA, May 23, 1898.

SIR: What Would a Catalogue Cost me. Givin Pr of Veterinary instments and Case for Medicine and Sergen instement i Have

read Medicine and as a man Who live in the country Have Had lot of Experince

Also What Would one of the Best Veterinary Book. Cost me. i am Satisfied that Withe the proper. instment and proper meidicine i can Head off lots of the Deses am Well pleas with your work. Can give Best of Refference

Remain your truly

Write

S A—

S—, Indiana

ANOTHER CURIOSITY.

B—, MARCHS 18 1898

DEAR SIR. DR.

I would Kindly ask you to please and send me a pescreption for injecting the disease amongst Cattle Called tuberculous and the quantity to-use? and

oblige me

DR. X— Z—

And still they say there is no need for State examining boards.—
[ED.].

MARRIAGES.

At Albany, N. Y., on April 28, 1898, Dr. William Henry Kelly to Miss Sparrow, formerly of Chicago, Ill.

At Philadelphia, June 7, 1898, Dr. Edward M. Ranck and Miss Florence M. Bunch.

NECROLOGY.

Veterinarian P. M. McArthur died in Hot Springs, Ark. Buried in Winston, N. C., March 24th. A host of friends mourn his death.

CORRECTION.

In the May number, on page 327, line 24, instead of "would not thrust off epithelia," read "covered with thrust-off epithelia;" line 32, instead of "1 per cent. albumin, read "1 per mille albumin."

On page 328, line 11, instead of "hæmorrhagic diseases," read hæmorrhagic diatheses;" line 26, instead of "*exitus vitalis*," read "*exitus letalis*."

CONTROL WORK.

REPORT OF THE VETERINARY DEPARTMENT OF THE MINNESOTA STATE BOARD OF HEALTH FOR QUARTER AND YEAR ENDING JANUARY 1, 1898.

(Concluded from page 188.)

GLANDERS-FARCY.

I am pleased to report that the work with glanders-farcy during 1887 was very satisfactory. Number of horses tested with mallein, 391; and number killed or died of glanders-farcy under observation, 180.

Distribution. There has been a peculiar distribution of the reported outbreaks during the past year. You will notice by referring to the map that the disease has been prevalent in the extreme northwestern portion of the State, involving Marshall and Polk Counties. During the past year 7 horses have been destroyed in Marshall and 34 in Polk. Then there is a strip of territory covering several townships in width, beginning near Willmar, in Kandiyohi County, running southwesterly through the eastern portion of Chippewa into Yellow Medicine County, in which glanders-farcy has been very prevalent during the past season. In this district there have been 8 cases in Kandiyohi County, 22 in Chippewa, 3 in the eastern portion of Lac-qui-parle and 5 in Yellow Medicine. Another quite serious outbreak occurred in Redwood County, involving a loss of 6 horses. In Faribault County, 7 horses; Winona, 8; 11 in the northwestern corner of McLeod; 30 just over the line in Carver County; 9 in Hennepin; Wilkin, 13, with more cases which are probably affected with glanders-farcy, under quarantine, and 7 horses to be tested with mallein. We will undoubtedly find some cases in the latter group.

I would like to call the attention of this Board to the serious prevalence of the disease in the western portion of the State. The disease has appeared in Murray, Lyon, Yellow Medicine, Lac-qui-parle, Big Stone, Wilkin, Blue Earth, and Marshall Counties.

In addition to these there have been less serious outbreaks in Cass, Todd, Crow Wing, Isanti, Stearns, Stevens, Cottonwood, Murray, Waseca, Mower, Lyon, Lac-qui-parle, and Big Stone Counties.

Explanation of this distribution. The explanation of this serious prevalence of glanders-farcy in the extreme western portion of the State probably lies in the fact that herds of Western horses are frequently driven across the border into that portion of the State. Many of these horses are sold before the herds are removed to the Eastern markets.

A serious prevalence of glanders-farcy in certain of the interior counties can be explained by the statement that the disease has previously existed in these neighborhoods, and the people traded and moved these infected horses about, thus spreading the infection over the neighborhoods.

I believe that the work done with these interior outbreaks has been very thorough, but others will undoubtedly come to light during 1898.

It is only fair to these counties to explain that this showing is not made because they are necessarily worse infected or the people more careless, but rather that their veterinarians and local health-officers have been active and efficient.

I believe that this State Board of Health should coöperate with the National Bureau of Animal Industry and the proper State officials of North and South Dakota, and perhaps Montana, to protect northwestern counties, and that this should be done in the near future.

What horses to test and when to kill. The question has arisen several times during the past year whether it was wise to insist on testing all horses that had been exposed in the stable with undoubted glanders, and to condemn for slaughter all horses which gave mallein-reaction.

Our work during the past year has emphasized the startling fact that there are many cases of glanders-farcy which show no external symptoms of the disease so far as the most expert veterinarian can observe. Work done by Nocard and other veterinarians in Europe, and by Dr. Williams and others in this country, indicates that there are occasional recoveries of mild cases under favorable conditions, and it is this fact that has caused us to do considerable hard thinking on the problems just stated. Under some circumstances it is undoubtedly practical to order partial quarantine for a long period of time, during which one or more mallein-tests may be given with a view to estimating the progress of the disease. Horses that do not react after the second or third injection may, as shown by Nocard, be considered as having recovered from the disease; but this rule may not be practical for general use. We have no

means for estimating at time of test whether an animal may recover; neither can we know in any given case that an animal which is not discharging from the nose or from farcy-sores is not infectious. In fact, there is reasonable evidence that they may be infectious. The plan which we have had in operation during the past year is outlined quite fully in the attached copy of stock-letter which is sent to chairmen, and in the accompanying circular concerning glanders-farcy soon to be issued.

Methods of dealing with glanders-farcy in other States. This was fully reported by me at our meeting on July 13th, and need not be reported at this time further than to remind you, in considering this question, that the methods differ widely in different States. In some States they use mallein only on horses which show clinical symptoms of the disease, and are therefore suspicious; in other States they test the entire stable when there is reason to suspect the presence of glanders-farcy, and condemn for immediate slaughter all that show clear mallein-reactions, whether the patients show other symptoms of the disease or not. In other States the mallein-test is not used officially at all, but I think it a fair statement that mallein is used extensively in all States where the sanitary work along veterinary lines is most progressive and satisfactory. The experimental work that has been done in this country and abroad during the past few years has proved beyond question that mallein is an accurate diagnostic for glanders. The most important points that remain to be settled are the limit of its use and what horses shall be condemned for immediate destruction. My own views are given in the proposed circular concerning glanders-farcy.

Relief for owners. It has occurred several times during the past season that we have felt compelled to work severe hardships upon owners who were unable to bear the losses. I hope that some arrangement may be made in the near future by which we may be able to reimburse in part, and perhaps at option, according to circumstances. I would not expect to do this as a rule, but for the present only in cases where our work resulted in severe losses to owners who were entirely innocent and were willing to do what was best for the public. We have had several instances of this kind during the year, and I assure you they are not agreeable experiences. In some cases we could do great good if we could only assist the owners to purchase one team of horses able to do farm work, and such horses need not be expensive.

a. Instructions to Local Health-officers Relative to Glanders-farcy.

Your letter of — received. I send you a complete glanders-file, consisting of the law dealing with infectious diseases of animals, and a number of circulars, each of which explains its intended use. Please fill out and return to me promptly all that are intended for this office.

It is the duty of the township supervisors, who constitute the local Board of Health in the country or the health-officer of a city, to quarantine any horse or horses suspected of having glanders or farcy. Such horses should be quarantined in care and at the expense of the owner, preferably in the stable wherein they have been previously kept.

You will see by reading the law that it is the duty of the local health-officer or local board to employ a competent veterinarian or physician to make such investigations as he may deem necessary before expressing a positive opinion, after which you must take such action as you may deem best, bearing in mind that animals affected with any infectious disease have no value so far as our work is concerned. The mallein-test should be used in all cases where there is a doubt concerning the nature of the disease. All horses which have been exposed by associating in the stable or otherwise with the ones that have farcy or glanders, or that may be reasonably supposed to have the disease, shall be tested. There sometimes appear mild or latent cases, and cases of recent infection that show no external evidence of the disease, and yet will react upon the mallein-test. Such horses are, or probably will become, dangerous.

You have full authority under the law to order the killing and burning or deep burial of the carcasses.

I send you to-day — c.c. mallein, sufficient for testing — horses, and also blanks for recording results of test. I trust the injections will be made and the temperatures taken at the hours and intervals suggested on these blanks, certainly at corresponding intervals. It is your duty to see that the work is carefully done and that all blanks are carefully filled out.

You must act on your own judgment in this matter and not be influenced unduly by what an owner may say or think. Owners are often dissatisfied when farcy or glanders is found in their stables, and often wish to employ some other veterinarian or have something else done that will simply delay action. I would not urge you to be hasty, however; matters like this should be dealt with carefully and thoughtfully.

It is only just to the owner that the necessary examinations be made promptly, and quarantine released as soon as the owner has complied with your instructions in regard to killing, disposal of carcasses, and disinfection of premises.

If there is anything further that the State Board can do to assist in this matter, let me know. Please keep me closely informed as to what you are doing or have done.

Very respectfully,

M. H. REYNOLDS.

b. Circular of Information for Local Health-officers Concerning Glanders-farcy.

In all ordinary cases of suspected glanders-farcy, first quarantine the suspected animals, then call in a competent veterinarian, who should make such examinations and tests as he may deem necessary. The further ac-

tion of the board to be largely determined by the diagnosis and advice of the veterinarian.

All horses must be included in this preliminary quarantine that are discharging from the nose or that have had recent sores upon the body, and all horses that have worked as mates with such horses.

The mallein-test should be conducted as nearly as possible according to the plan given in the blanks which are sent out from this office with the mallein. This plan for the test has been found very convenient, and it is very important for the proper keeping of office-records that the injection should be made and the temperatures taken at the same hours by different veterinarians.

Test all horses that have been exposed in the stable to cases that may be reasonably suspected of having the glanders-farcy.

It is most economical and usually most satisfactory to have the veterinarian who makes the examination and conducts the mallein-test finish up the work at one trip.

All horses that give a clear reaction on mallein-test, and show external symptoms of the disease: all horses which react on mallein-test, and have chronic cough or any chronic lung-trouble, thick wind, etc., and all horses which show positive symptoms of the disease, without a clear mallein-test, must be destroyed without delay. All horses which react, but show no other symptoms of the disease, may either be killed at once, or quarantined to be retested at the end of thirty days, or continued under partial quarantine, for retest, for a period not to exceed one year from first test.

Horses that have reacted twice with an interval of thirty days or more, whether showing other symptoms of the disease or not, must either be killed at once or continued under partial quarantine for a period not longer than a year from first test. If at any time within the year these horses show external symptoms of the disease they must be killed.

If they show no external symptoms of the disease, but react again at the end of the year, they must be continued under partial quarantine until they have either been retested twice, with an interval of thirty days, without reaction and released, or have developed external symptoms of the disease and have been killed. During this time they must not be sold for removal from the place. In case it is decided to retest at the end of thirty days the same ruling must be applied as though the test had occurred at the end of the year.

In all cases where retests are made, the second dose should be one-half larger than the first dose.

It is not always necessary to rigidly quarantine all the horses on a farm, but all cases that are discharging from the nose or from sores upon the body must be rigidly quarantined. The veterinarian can often select a team that will be reasonably safe to allow upon the road. Such a team must not be put in other than the owner's stable, or tied to any public hitching-post or rack, or be watered from any public watering-trough or tank.

Horses affected with glanders-farcy or any other infectious disease are considered by law as having no commercial value.

The carcass must be destroyed by burning, if practicable; otherwise buried under four feet of earth.

Quarantine may not be released in any case until the owner has disinfected and otherwise cleaned up as directed by health-officers.

Health-officers must realize that the law imposes important duties upon them, and severe penalty for either neglect or refusal to perform their duties. They should impress the fact upon the owners that the law also imposes duties and penalties upon them.

Glanders-farcy is very fatal and easily communicable to persons, if the matter from the nose or farcy-sores finds lodgment in any cut or scratch upon the hands or face, or if the matter gets into the nose or eyes.

The State Board of Health employs a field-veterinarian who is almost constantly on the road attending to unusually serious outbreaks of infectious diseases among domestic animals; to outbreaks where there is difference of opinion between veterinarians who have been called into the case, and to places where there are no competent veterinarians.

TUBERCULOSIS.

This subject has been quite fully reported in my several quarterly reports during the past year, and need not be enlarged upon at this time. I am still satisfied that, for the present, the most practical plan for dealing with tuberculosis is to do our utmost to encourage owners to have their cattle tested, and to insist that herds be tested with tuberculin where there is good reason to suppose that this disease is present. I believe that it is not practical at present to attempt any sweeping measures of eradication by exterminating tuberculous cattle. We have continued to furnish the tuberculin freely, together with full instructions concerning its use, to and through local health-officers.

Conference with health-officers of St. Paul and Minneapolis. As reported at a previous meeting of this board the committee on infectious diseases of animals had two meetings with the health departments of the two cities, at which meeting certain important matters were agreed upon. Representatives of the three bodies agreed that a public abattoir for each city was an important thing, for which we must all work, and which must be secured before the meat-supplies of the two cities can be properly inspected. We also agreed concerning the tuberculin-test, that cattle which react upon the tuberculin-test ought to be permanently branded; that the brand ought to be uniform, and that the most practical plan is to brand with a hot iron in a conspicuous place. We agreed to use a small capital "T" and brand upon the left hip, brand to be furnished by the State Board.

It was also decided that the Government regulations concerning inspection of tuberculous cattle that are slaughtered for food-purposes should be adopted, the essential point being that cattle may be affected with tuberculosis and yet fit for human food, and that the only way to estimate upon this point is by competent inspec-

tion at the time of slaughter. The health department of each city has agreed to send duplicates of their tuberculin- and mallein-records for proper filing with this department of the State Board.

CORNSTALK DISEASE.

Cornstalk disease is the very unscientific, but very expressive name for a disease that has prevailed in many portions of the State during the fall months. This trouble has been reported from the following counties: Benton, Nicollet, Brown, Blue Earth, Sherburne, Houston, Jackson, Chisago, Wright, Freeborn, Martin, Redwood; in all, twelve counties.

The disease is probably not a new one, but has only been recognized and described within a few years. There is no evidence that the disease is infectious, so it does not come within the jurisdiction of the State Board of Health, and yet it is invariably reported as an infectious disease, and has caused a great deal of alarm. The etiology of this disease has not been worked out as yet. We know, however, that it usually appears among cattle that have been turned out in the cornstalk-fields; that it rarely appears among cattle that are fed shocked corn, and that the cattle die in comparatively large numbers and very suddenly. The attached circular has been sent out quite freely by the Experiment Station and State Board of Health to local papers in infected portions of the State, and also sent out freely in correspondence with the chairmen of town boards in southern portions of the State:

Cornstalk Disease.

A number of reports have been coming in from various parts of the State to the effect that this disease has appeared among cattle that have been turned out in the stalks, and this is written as a matter of warning for farmers who wish to feed their cornstalks to cattle in the field. It is scarcely necessary to suggest that the cattle should be taken out of the field wherein the disease appears, as early as possible, and not put back in the same field for at least a month, and then very cautiously.

Symptoms. This disease appears very suddenly. The diseased animals may be seen standing apart from the others, and showing a peculiar humped-up appearance, the tail switching, eyes with a wild expression, and sometimes cattle are actually delirious. As the disease becomes more pronounced the symptoms of pain and delirium increase. Death frequently results within twenty-four hours after the first symptom is noticed. Cattle affected with this disease are frequently reported as rabid, and have been the cause of considerable excitement in a neighborhood, the people thinking it rabies and that the cattle have been bitten by a mad dog. A mad-dog story usually becomes attached sooner or later to the history of the outbreak. The disease is probably not contagious, and many cases

appear in close succession, simply because the cattle have been all living under similar conditions and eating the same feed.

Prevention. The prevention of this disease is very simple. It appears among cattle that have been turned out in the cornstalk-field, and the cattle usually die while in the field. If the cattle which have been dying have been kept in the stalks and the symptoms correspond with those I have given, they should be taken out as soon as possible from the fields wherein the disease has appeared, and be induced to take as much salt and water during the next few days as possible. The disease does not seem to appear when the corn has been cut and shocked and the cattle are fed this shocked corn. The trouble comes most frequently to cattle that are turned in the stalks hungry, and for this reason it is safer to turn cattle in for the first time after a generous feed of what they have been accustomed to, and let them remain in the field. The disease appears most frequently among cattle that are taken out at night, put back in the morning, etc.

Treatment. Cases die so suddenly, and the disease is so easily checked without medicines, that it does not seem worth while to suggest treatment.

M. H. REYNOLDS.

MISCELLANEOUS DISEASES.

During the year there have been occasional outbreaks of black-leg among young cattle in western portions of the State.

Anthrax has been reported, but the evidence is imperfect.

Scab in sheep does not prevail to a serious extent in this State, but there is imminent danger that we may have much trouble in the future from the large shipments of sheep that come every fall from other States where the disease is prevalent. The matter can only be controlled by the coöperation of interested States, with the assistance of the railroads and General Government. In his twelfth and thirteenth annual reports, Dr. Salmon, chief of the Bureau of Animal Industry, made certain recommendations concerning this matter which ought to be seriously considered by those who are vitally interested.

There have been a number of cases of canine rabies in the State, mainly in the vicinity of St. Paul, and one outbreak of bovine rabies which resulted in the loss of four cattle. This occurred in Wright County.

One serious outbreak of so-called verminous bronchitis at Taopi, in Mower County, has been investigated. This outbreak appeared in the fall among the spring calves. Ten had died at the time of the first report; others died later, and the loss in thrift and growth was quite serious. Verminous bronchitis is certainly an unsatisfactory name for this disease, for it is not distinctly a bronchitis, and the disease appears under conditions that give a strong suspicion that the strongyles are not the primary cause of the disease.

IN RELATION TO EXPERIMENT STATION AND FARMERS' INSTITUTES.

I have been greatly pleased with the way in which the veterinary work in connection with the State Board of Health has harmonized with the veterinary division of the University of Minnesota Experiment Station. As Experiment Station veterinarian I have charge of matters concerning non-infectious diseases of domestic animals, and from the State Board of Health comes the section of infectious diseases, and the two have fitted together very nicely.

The relation that has existed between the State Farmers' Institute and the veterinary portion of the State Board of Health work has been very harmonious and very helpful.

FIELD-VETERINARIAN.

Concerning the work of Dr. S. D. Brimhall, as field-veterinarian to the State Board of Health, I will only take time to say that his work has been very satisfactory both to the farmers and stockmen with whom he has to deal, and to me as director of the veterinary department, and, I trust, to Dr. Bracken as executive officer of the Board. Although his work necessarily brings him at times into something of a conflict with owners, I am pleased to report that in every case, except one, he has been able to obtain their full confidence. He seems to have a happy way of dealing with people in this kind of work. I believe that in attending to cases of unusual severity, to matters over which there is dispute by different veterinarians or health-officers, and by going to places where there are no competent veterinarians, he is doing good work for the State.

PROPOSED CIRCULAR: GENERAL SUGGESTIONS FOR LOCAL HEALTH- OFFICERS.

Township supervisors should bear in mind that under the law they are local health-officers, and, at their meetings, should discuss the health of farm-stock in their township, just as they discuss the condition of the roads or infectious diseases among people.

If any suspicious disease has appeared among domestic animals, it should be reported at the meeting by the member who knows of it.

It is the duty of the local health-officers to take the initiative in all cases of infectious diseases. They should not wait for complaints from neighbors or for instructions from the State Board.

Local health-officers should make it their rule to act on their best judgment, and not be influenced unduly by what owners and neighbors may say or think.

The law specifies that local health-officers shall report within twenty-four hours to the State Board after they have information concerning any infectious disease among stock.

Local health-officers should keep a complete file of all blanks and circulars which they may need for infectious diseases among domestic animals, and should distribute circulars in the neighborhood where they will do most good. Local health-officers should impress upon owners that quarantine and other regulations which local boards may make are supported by law and must not be violated, and that such violation is punishable by severe penalty.

As a general rule, the township pays all the expenses which may be incurred by the town board in pursuance of this work, and incidental traveling expenses such as hotel and livery bills which may be incurred by the field-veterinarian or other representative of the State Board while doing work for that township.

Lumpy jaw. All cattle affected with the disease known as lumpy-jaw should be quarantined, and when killed should be inspected by one of the local board. If all the internal organs are healthy the meat may be used or sold for food, but if any of the internal organs are diseased the meat shall be condemned.

Tuberculosis. All the cattle which show symptoms of tuberculosis should be quarantined at once and the entire herd tested with tuberculin. All that react should be kept in quarantine and none of their products used as food for man or animals. If the owner desires, they may be killed at once, or tested again not sooner than two months and not later than three months, as provided by law. If they give distinct reactions on second test, they should be killed and the stable cleaned and disinfected, same as for glanders.

Illinois.—During 1896–97 resignations of the following Assistant State Veterinarians were tendered and accepted by the board: Drs. Joseph Hughes, Chicago; A. S. Alexander, Evanston; J. F. Ryan, Chicago; H. G. Pyle, Springfield; George Ditewig, Canton; J. Stallman, Pontiac; R. C. Mylne, Aurora; A. H. Baker, Chicago; W. A. Baker,¹ Gibson City.

The following appointments of Assistant State Veterinarians were made by the State Veterinarian and advised by and consented to by the board: Drs. W. J. Thomas, Henry; W. J. Martin, Kankakee; S. Snyder, Fairfield; J. M. Wright, 1639 Wabash Avenue, Chicago; J. L. Tyler, Chebanse; B. F. Hoover, Davis; F. B. Rowan, Belvidere; S. Schoenleber, Morris; J. B. Walsh, Monticello, vice Frank Bales, Monticello.

The following is the revised list of Assistant State Veterinarians now holding commissions: W. E. McGrath, Union Stock Yards, Chicago; L. C. Tiffany, Springfield; J. A. T. Hill, Chicago Lawn,

¹ Removed from the State.

Chicago; A. McGuire, 1446 Wabash Avenue, Chicago; B. A. Pierce, Union Stock Yards, Chicago; C. A. Pierce, Elgin; B. F. Swingley, Freeport; J. J. Walker, Olney; F. W. Rowan, De Kalb; Charles W. Johnson, Elburn; J. F. Reed, Decatur; James Bond, Austin; S. V. Ramsey, Tuscola; A. J. Ziegler, Lincoln; B. B. Page, Rockford; John C. Stewart, Danville; J. D. Nighbert, Pittsfield; F. H. Armstrong, East St. Louis; Walter Tomlinson, Alexis; J. F. Pease, Quincy; O. J. McGurty, Paris; A. G. Alverson, Bloomington; Matthew Wilson, Mendota; C. M. Paxton, Kansas; P. C. Dodge, Rochelle; W. F. Weese, Ottawa; James Addison, Aledo; Thomas Hope, Waukegan; J. C. Booker, Alton; I. J. Miles, Charleston; John Scott, Peoria; W. J. Lawson, Petersburg; H. G. Hoover, Sterling; L. F. Brown, Galesburg; E. S. Fry, Naperville; G. L. Bauer, Belleville; C. C. Behner, Marshall; W. J. Thomas, Henry; W. J. Martin, Kankakee; S. Snyder, Fairfield; J. M. Wright, 1639 Wabash Avenue, Chicago; J. L. Tyler, Chebanse; B. F. Hoover, Davis; F. B. Rowan, Belvidere; S. Schoenleber, Morris; J. B. Walsh, Monticello.

During the past year applications for testing thirty-six herds were received, numbering some seven hundred animals, of which seventy-seven responded, and all proved tuberculous on autopsy; of this number forty-one were condemned as unfit for food, and thirty-six were passed, the disease in the latter being very limited and localized. The State Live Stock Sanitary Board recommends the enactment of a law compelling the owners of dairy-cattle who are selling milk for human consumption or to creameries, and the owners of breeding herds within a reasonable time, to be designated in the act, to submit their cattle to a tuberculin-test under the supervision of this board, providing that the cattle afterward introduced into the tested herds shall be first tested with tuberculin; that all cattle responding to the test sufficiently, in the judgment of the board to indicate the presence of tuberculosis in the animals, shall be slaughtered and the carcass disposed of as the board shall direct; that the owner in such cases shall receive a stipulated compensation, in part, at least, remunerating him for the loss sustained; providing further for retesting all such herds at such times as the board shall deem necessary to thoroughly eradicate the disease, and that the necessary appropriation be made to carry out the provisions of such an act.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY EXAMINING BOARD.

The regular June meeting for the examination of candidates for the license of the State Board to practise in Pennsylvania will be held at Philadelphia, in the City Hall, civil service examining board room, at 10 A.M. each day, June 20th and 21st.

By order of the President.

W. HORACE HOSKINS,
President.

S. J. J. HARGER,
Secretary, 205 N. Twentieth St., Phila.

U. S. V. M. A.

DR. A. B. CAMPBELL, of Berlin, Ontario, expects to attend the U. S. V. M. A. meeting at Omaha. Canada should send a large delegation and its best representatives to this meeting to discuss the proposed change of name to American Veterinary Medical Association.

Among the more recent papers announced for the Omaha meeting are "Diseases of the Dog and Antitoxins," by H. D. Gill, V.S., New York College of Veterinary Surgeons; "A Study of the Healing Process in Ovariectomy in Cows," and "The Control of Hog Cholera," by Dr. M. H. Reynolds, of Minnesota State Board of Health; "Practical Points in Country Practice," by Dr. S. S. Whitbeck, and "Acute Indigestion in the Horse," by Dr. R. R. Bell, of the *American Veterinary Review*.

Clinical demonstrations have been promised of "Caudal Surgery," by Dr. H. D. Gill; "Extraction of Teeth and Other Dental Operations," by Dr. L. A. Merillat, of McKillip Veterinary College; "Ovarectomy in the Mare and Other Animals," by Dr. W. L. Williams, of the New York State Veterinary College; "Casting and Confining Animals," by Dr. T. S. Butler.

Transportation rates of one and one-third fare have been already obtained in the Western Passenger Association from Eastern terminal points of this district: Chicago, \$20; St. Louis, \$17; St. Paul, \$15.75. Eastern associations are expected to afford favored rates.

Many Eastern veterinarians will take their wives with them to Omaha. Among the ladies there will be some new faces.

CHICAGO VETERINARY SOCIETY.

MEETING called to order March 10, 1898, by the President, Dr. Walker. Roll-call showed fifteen members present. On request of Dr. Walker, Dr. Merillat took the chair as acting chairman. The minutes of the previous meeting were read by the Secretary. Exception to the same was taken by Dr. Walker relative to the last motion—an appeal from the chair. Motion by Dr. Campbell, seconded by Dr. Ryan, that the objectionable clause in the minutes of the previous meeting be excluded from such minutes; carried.

No report from the Secretary. The Treasurer reported \$8.08 in the treasury.

The committee appointed to draft resolutions of regret on Dr. James Henderson's resignation reported through their chairman the resolutions adopted. After the reading of the same, it was moved by Dr. Merillat, seconded by Dr. Rishel, to accept same; voted and carried. Moved and seconded, that Dr. James Henderson be elected to honorary membership in the Society; carried. Motion by Dr. Nelson, seconded by Dr. Ryan, that the rules be suspended and the reconsideration of the previous vote relative to the expulsion or retention of Drs. Pierce and McGraw be acted upon; voted and carried. After some discussion it was moved and seconded to lay the reconsideration of the matter on the table; voted and carried. The second reading of the resolutions to change the quorum of the Society for the transaction of business from eleven to seven was read by the Secretary; voted upon and carried.

Under communications a letter was read from Dr. Albert Babb, Secretary of the Illinois State Veterinary Medical Association. Moved and seconded to notify Dr. Babb of the receipt of said letter; voted and carried.

Regular programme: Dr. Ryan, "Region of the Eye as Regards Examination for Soundness." The paper, although short, was a very good one, and great interest was shown by the members during its reading. Owing to the members' agreement with the essayist that all the conditions were unsoundnesses, no special discussion took place. Moved by Dr. Hughes, seconded by Dr. Nelson, to close the discussion; voted and carried.

Under new business, the resignations of Dr. E. L. Quitman and Dr. Frank Allen were presented to the Society by the Secretary. Motion by Dr. Dubia, seconded by Dr. Campbell, not to accept these resignations. Amendment by Dr. Hughes, seconded by Dr. Rishel, to defer action until the next regular meeting; voted and carried.

Moved and seconded to adjourn.

Dr. J. F. Ryan's Paper.

THE EYES OF THE HORSE SUBJECTED TO CRITICISM IN EXAMINATIONS FOR SOUNDNESS. The eye, the organ of vision, the physiological mechanism of the sense of sight; the perfection of anatomical arrangement of parts by which optical images may be formed, or means by which the faculty of vision is exercised. Hence the necessity of being most particular in passing criticism on this most important organ.

A horse with impaired vision may become a very dangerous animal; he may see things imperfectly, distortedly, or not see them until just upon them (such as manhole covers in the streets, etc.), from which he unexpectedly shies, with very varying results. And again, on the other hand, a beautiful, clear, full, sound, intelligent eye enhances the appearance and value of the animal; and a common-place, dull, unsound, unintelligent eye detracts from his beauty and depreciates his value, from a lesser to very considerable extent as a consequence.

The following diseases and injuries to, and abnormal conditions encountered in the eye and its appendages I consider unsound:

Opacities of the cornea, of all forms, that are distinguishable on the corneal field.

Cataract. Any diminished transparency, or any opacity of the crystalline lens or its capsule.

Palsy of Optic Nerve. *Anaurosis* (amblyopia). From various causes;

anæmia from illness or hemorrhage, lead poisoning, exposure to prolonged glare, as from snow-blindness, tumors, and other diseases of the brain implicating roots of optic nerve.

Retinitis, under pressure upon the retina from dropsical or inflammatory effusion, and also from overloaded stomach. Unsound except where disease is symptomatic of some removable cause.

Periodic ophthalmia, recurrent ophthalmia, constitutional ophthalmia moon-blindness—irido-choroiditis, in any stage of its periodicity is absolutely unsound.

Loss of eye, through injury, enucleation, rupture, etc.

Absence of eyelid; torn off, or removed in whole or in part.

Absence of membrana nictitans.

Fungoid growths, of whatever character, requiring excision.

Occluded duct, producing epiphora, requires surgical treatment, and is an unsoundness.

Paralysis of lids (ptosis), partial or complete, unsound.

Strabismus of all varieties, causing faulty position of the eye, requiring division of the tendon of the contracting muscle.

Entropium, or inversion of the eyelid.

Ectropium, or eversion of the eyelid. Both conditions require delicate surgical interference, and are unsound.

Vermicular Ophthalmia, caused by filaria papillosa, requires removal, and is an unsoundness.

THE meeting of April 14, 1898, was called to order by the President, Dr. Walker. On count only eight members were present. Three visitors were in attendance.

The minutes of the previous meeting were read and approved. The application of Dr. F. Lockwood Wingate for membership was duly approved and the doctor elected to membership.

Dr. Frank Allen read a paper on "Dental Cysts, Deafness, Paralysis of the Ear, Tumors on Cartilage of the Ear, Fistula, and Ménière's Disease." The paper was well received and called forth quite a discussion. On motion, the discussion was closed.

The resignation of Dr. E. L. Quitman was again laid over until next meeting.

The resignation of Dr. Frank Allen was presented for action. Upon request of the President, Dr. Allen withdrew the resignation.

Motion by Dr. Baker, seconded by Dr. Robertson, that the President hire the society room of St. Andrew's Society for the use of the Chicago Veterinary Society, so that we be enabled to have our own society room. Voted; carried.

On motion, adjournment.

Dr. Frank Allen's Paper.

DENTAL CYSTS. These may be found in all parts of the body, but generally in the sinuses of the head and near the base of the ear. They consist of a membranous sac containing developed or partially developed teeth. They would, in my opinion, constitute an unsoundness necessitating a surgical operation for their removal, although many animals pass through life without one and are still serviceable.

DEAFNESS. This, from whatever cause, whether congenital or accidental, is a decided unsoundness. The causes of deafness in a horse are numerous, and not well understood. Since the overhead trolley wires have been in existence I have come across several cases from severe electrical shocks.

PARALYSIS. This, although a great disfigurement, I should hardly call an unsoundness, as a horse with paralysis of either one or both ears is just as good for service as a horse without. I should consider it a bad blemish, but not unsound.

CARTILAGE TUMORS (ENCHONDROMATA). These tumors, if they should grow from the cartilage of the ear, although I have never seen one, I should consider a decided unsoundness, judging from my experience with them on the sternum, where, I believe, unless operated upon at a very early stage, they are incurable, and they seem to grow again faster than ever, after being removed.

FISTULA. This is an unsoundness, in my opinion, necessitating a surgical operation. I have come across two of them recently, both passing from the inside of the conchial cartilage, running downward and forward about four or five inches. They both healed up nicely after being curetted out. I believe a common cause of these to be the use of a twitch on the ear.

MÉNIÈRE'S DISEASE (LABYRINTH VERTIGO). This disease I believe to be a most important one from a medical and legal point of view in an examination for unsoundness, for so far as I am aware there are no symptoms by which it may be detected unless the animal should be seized with vertigo while being examined, which would be improbable. That this disease occurs in our patients very frequently, I firmly believe, and also that many of us make an error in diagnosis by calling it megrims or staggers, and account for it by a reflex action from the intestinal tract; but surely if errors in diet were always the cause, megrims would be far more common with us than it is. What brought this disease prominently to my notice was the fact that I unwittingly purchased for my own use an animal affected with it, and which afterward showed all the symptoms of this disease as manifested in the human being. If you will pardon me for a few moments, I will give you the symptoms of this particular case, as I had an opportunity to hold a post-mortem on it, for the animal kindly committed suicide while in my possession.

After I had purchased the animal I asked the owner if he had any bad habits. He said no, except that he had "a bee in his bonnet." I drove him for awhile, and one day while climbing a hill at a walk he suddenly jumped to the right side and shook his head as if a wasp were in his left ear; staggered and would have fallen if I had not jumped to his head. When I went to put my hand up toward his ear it seemed as if his vision was distorted, for he shrank away as if he expected to get hit. The conjunctivæ were highly injected. In about fifteen minutes he was able to stand without help, and in half an hour fit to be driven. I tried dieting, bleeding, physic, bringing no results. On post-mortem, I found the Eustachian tube on the left side greatly reduced in size, as was also the guttural pouch and the membranous labyrinth in a state of inflammation, and about one-half the diameter of the right ear.

I will try to explain my theory for this disease:

I believe that it is caused by a hyperæmia of the membranous labyrinth and a partial occlusion of the Eustachian tube, and not a hemorrhage into

the labyrinth, as suggested by Fleming, for if that were the cause, why should the symptoms be only transitory? the hyperæmia depending on, either, first a venous stasis from mechanical or other obstruction to the return current, or, second, an increased arterial supply. First, the causes of the venous stasis might be mechanical obstructions to the great vessels of the neck by collar, etc., the sudden lowering of the head, the venous current being retarded by gravitation; coughing, by increasing the thoracic pressure and so obstructing the passing of blood into the right auricle. Second, increased arterial supply produced by sudden physical exertion, rigidity of the walls of the arteries, by diminishing the elasticity and so increasing the pressure. The increase in the labyrinth blood-supply in the human is characterized by vertigo, impairment of vision, etc., and why not in our patients? We are all aware that the semicircular canals are closely connected with coördination of movement and equilibrium, as experiments prove that section of one side of them caused incoördination on that side, and section of both loss of equilibrium. Epidemic parotiditis is particularly apt to affect the labyrinth structures, and recent investigations prove this to be due to infection from the blood-current. The same disease would also affect the middle ear by partial occlusion of the Eustachian tube, thus rendering the air-pressure on the tympanum unequal; and knowing that this in a human being will give rise to symptoms analogous to labyrinth vertigo, why should it not do so in a horse? and I believe future post-mortems will prove that partial occlusion of the Eustachian tube is a frequent cause of this trouble. Of course, if this disease could be detected during examination, it would, in my opinion, constitute an unsoundness.

Discussion.

Dr. Walker: I owned a horse which, after my having him for about six weeks, tried to get his head through the wall of his stall one night. I got him out and sent him to pasture for about two or three months, and afterward sold him. Two or three weeks later he was hurt again, and I found him to be in the exact condition as at the time when I bought him. I think that there are some cases where it is quite possible to detect them. You will find them to be very bad leaders if you lead them from behind, and if a man tries to lead him with a halter he is inclined to pull back, but there are many cases where they deceive a veterinary surgeon.

Dr. Robertson: I have never been able to diagnose a case.

Dr. Baker: Mr. Chairman, I never had an opportunity of making an autopsy on a case of this kind, but they are comparatively not rare in practice. I rather admire Dr. Allen's theory with regard to the cause, especially after he had found an occlusion of the Eustachian tube. I think I could suggest as a possible additional cause of the hyperæmia of the labyrinth, that it might come directly from that, for the function of the Eustachian tube is to relieve the drum from excessive tension, and on this account there might be a great deal of tension of it. This naturally, especially in cases of violent sounds, would produce such violent movements of the drum as to increase pressure on the internal ear, and through that, presumably, a congestion takes place, so that with the fact existing, as proven by the postmortem, there is occlusion of the Eustachian tube in such a case, the result seems to be quite philosophical. In the paper, which I think, although short, was very good indeed, Dr. Allen speaks of congenital or

accidental cysts. I could hardly imagine a cyst like that being accidental. I supposed they were always congenital. Then, regarding his conclusion regarding soundness or unsoundness in paralysis of the ear, if he recognized it as paralysis it is a diseased condition. I am inclined to call it an unsoundness, and I would not call a horse that has paralysis of one or both ears sound.

Dr. Allen: I think Dr. Baker makes a mistake in saying that I said that dental cysts are congenital or accidental. I said that deafness was congenital or accidental.

Dr. Baker: Speaking of congenital deafness, many cases of congenital deafness in both horses and dogs, which I found myself, were without any external opening. The skin was grown right over the auditory canal. Hearing was restored by simply cutting an opening through and removing the skin that occluded the external auditory canal. Dr. Allen did not refer to any particular cases of deafness either congenital or accidental.

Dr. Campbell: I would like to ask Dr. Allen just what condition we would find a horse in paralysis of the ear. What is it, a lop ear?

Dr. Allen: What I have seen in cases of paralysis of the ear has been in conjunction with paralysis of the lip, and there was always a drooping of the ears, which I would call a lopping.

Dr. Campbell: Did you ever hear of horses having had something put in their ears that were in that condition?

Dr. Allen: I have seen cases of that kind, but they would recover after removal of the foreign substance.

Dr. Wingate: I have seen cases in the West Indies where it is called lop-ear. I do not know whether it is due to paralysis. It is due to a very large tick that is found there, and if not looked to in time is apt to destroy the ear, and sometimes the ear drops off. This tick seems to be very fond of the ear, and it is very prevalent out there. In fact, they are so prevalent that nearly every time before grooming the horse they look after the ticks first and remove them.

Dr. Walker: I cannot agree with Dr. Allen that ears with paralysis are sound, though I have seen many lop-eared horses that I consider sound. I remember one that I saw some two years ago. He was taken into a blacksmith-shop, and he was somewhat ugly to shoe. They put a twitch on him, but it slipped off. The blacksmith then hit him with it, and he had paralysis of the ear. I saw him several hours later and pronounced him to be an unsound horse. There are several breeds of horses lop-eared; for instances, the mule, or the jack, but I think when it comes down to a horse with paralysis of the ear, I consider him an unsound animal.

Dr. Campbell: Mr. President, this Ménière disease I never heard of until Dr. Clancy gave me the list, and I would like to ask Dr. Allen if there is much of it.

Dr. Allen: I think that nine out of every ten cases of staggers are Ménière's disease. You will find it mentioned in two or three books on the human being. When I had this horse some two years ago, there was quite a discussion in England over this disease. Dr. Fleming read a paper on it before the Central Veterinary Medical Association in 1885. He says he never made a postmortem examination. None of the gentlemen present had ever done so.

Dr. Robertson: Mr. Chairman, I am inclined to favor Dr. Allen's philos-

ophy on this disease, especially in regard to these so-called cases of staggers. In all cases that I have run across, I find it to differ from staggers. I have seen different digestive troubles, such as partial loss of sight, also pressing the head against the wall, etc., following indigestion or some trouble of that kind; but I have never seen this peculiar shaking of the head that would indicate an ear-trouble. Horses that I have known that were attacked in this way have been always properly taken care of, and their previous history was all right. Their digestion was good. I do not see how we get this peculiar shaking of the head unless from ear-trouble. I think the Doctor's philosophy is correct, and it would be well for us to investigate future similar cases.

Dr. Allen: In one of my cases the only treatment of any effect was hypodermic injections of pilocarpine, and this helped only temporarily. I tried bleeding. Physicked him; in fact, tried everything without any effect. Hot or cold weather made no difference.

THE meeting, May 12, 1898, was called to order at 8 P.M., by President Walker. Thirteen members were present. The minutes of the previous meeting were read and approved. No report from the Secretary.

Treasurer's report showed \$16.43 in the treasury. The Secretary was requested to read the list of delinquents; they numbered twenty-nine, some of whom, however, had left the city.

Motion by Dr. Johnson, seconded by Dr. Robertson, that the Secretary notify the members two years in arrears that unless their accounts are paid by the next meeting they shall be dropped from membership; carried.

Dr. E. L. Quitman desired to withdraw his resignation. On vote he was allowed to do so.

The regular programme in regard to "Soundness of Horses" was led by Dr. Hughes. The following subjects were discussed: Splints, sprained tendons, sprained suspensory and check ligaments, diffused periostitis, osselets, neurectomy, sprung-knees, interfering, and firing. The subjects were thoroughly discussed. On motion, the discussion was closed.

Motion by Dr. Hughes, seconded by Dr. Ryan, that no meetings be held during July, August, and September; carried.

Motion by Dr. Campbell, seconded by Dr. Allen, that the President call upon the officers of the St. Andrew Society and ascertain what rental by the year they will accept for the room we now occupy; carried.

Under new business a letter was read by the Secretary from our former member, Dr. James Henderson, now of Scotland, setting forth his thanks for the resolutions of this Society in his behalf, and wishing the Society all prosperity.

A letter was also read from the Civil Service Commissioners of Chicago, stating they did not know when an examination for police veterinarian would be held.

On motion, adjournment.

Dr. Joseph Hughes's Paper.

SPLINTS. The great scope of the subjects assigned to me causes me to deal with them extemporaneously rather than prepare a paper on such a comprehensive number of conditions. To begin with, I have some rather positive opinions regarding splints and their relation to soundness and

unsoundness. At a certain stage of its growth a splint is merely a localized periostitis attended with a limited amount of effusion. Later on a bony exostosis appears on the site of the periostitis. During the stage of effusion lameness is present. As soon as the exostosis appears, lameness disappears. A formed splint, then—that is, a matured, a developed splint, a splint that is clearly apparent and could be detected by any novice, rarely causes lameness. I say rarely, because I recognize the fact that we sometimes find a splint of very considerable extent propped up against the lower row of bones of the knee, which may interfere with the action of the joint or set up a localized synovitis. This is an instance in which a formed or mature splint produces lameness. When, however, a splint is placed below the line of the carpal articulation and having no relation with it, no matter whether it involves the lateral aspect of the metacarpal bone, the furrow between the large and small metacarpal bones, or the lateral aspect of the small metacarpal bone, I make the statement that it is harmless and will not give rise to lameness. Even in those cases involving the posterior border of the small metacarpal bone and slightly bending over the tendon, in my opinion, they rarely interfere with the usefulness of the animal, except during the stage of their development. When I examine a horse for soundness, and a splint of considerable dimensions is present on the inner aspect of the metacarpal region, say midway between the fetlock and knee, the purchaser generally puts the question, “Will the horse get lame from that splint?” If I find that the horse’s action is clean and there is no tendency to interfere with the growth during motion, I unhesitatingly say, no. Sometimes splint-lameness afterwards develops in that particular limb, but when a careful examination is made the developing splint will be usually found to affect the *outside* of the region of the canon-bone rather than the inside. In my opinion, horses should be rejected that have developed splints close up to the knee, but we can safely overlook those exostoses when further down. There are many other points connected with the location of the splints and their relation to soundness, such, for instance, as splints located in the channel between the small and large metacarpal bones, the consideration of which, I hope, will be brought out during the discussion which will follow.

THICKENINGS OR SPRAINS OF TENDONS AND SUSPENSORY AND CHECK-LIGAMENTS. It may be stated broadly that these conditions give rise to unsoundness. A thickened tendon or ligament means a shortened tendon or ligament, owing to organized effusion in the interfibrous structure; and it is plain that a horse with a shortened tendon or ligament, cannot be as useful as one in the normal condition. In deciding as to whether a thickening involves the fibres of the tendon, or the paratendineum, one must depend upon the amount of flexion present in the limb while in the quiescent state; upon the action of the animal during movement, and upon digital manipulation of the part. Thickness in this region should be always looked upon with suspicion. Remarks made would apply to the condition known as bowed tendon. In racehorse practice, where sprains of tendons and ligaments are common and horses are continuously changing hands, we are often called upon to give an opinion on the seriousness of thicknesses affecting these tendons and ligaments. Thicknesses, however slight or insignificant, unless they are confined to the paratendineum, are very serious in these animals. In my opinion, strain and thickening of the inferior

carpal or check-ligament is the most serious of all. Next to this is thickening of the suspensory, then thickening of the perforans, and lastly of the perforatus.

"BUCKSHINS" OR "BUCKED SHINS," is a condition that one might say, is entirely confined to racehorses, and, being a diffused periostitis, we often find exostosis involving the lower and anterior extremity of the metacarpal bone. Lameness is, as a rule, only present in the acute stage. Sometimes, however, the exostoses encroaching upon and involving the synovial membrane of the fetlock-joint produce more or less permanent lameness. These lower exostoses are known in racing parlance as osselets. The racehorse affected with them should be considered unsound, more especially if the animal is under four years old; in aged horses, where there is no lameness associated with their presence, I think they may be overlooked.

SPRUNG-KNEES, on account of limiting the animal's usefulness, and on account of detracting markedly from the appearance of the animal, beside having a tendency to cause stumbling, should be regarded as unsound. I am aware of the fact that there are horses with badly sprung knees which give the utmost satisfaction in the work which they are required to do. Horses having an oblique shoulder-blade with sprung knees do not usually stumble, and in passing on the seriousness of the condition the conformation of the shoulder should always be considered. I hold, however, that the usefulness of an animal having sprung knees is markedly interfered with, and the condition is often associated with disease of other parts, and, as such animals frequently stumble, they should be rejected.

SCARS OF NEUROTOMY. In examining the region of the canon it is unnecessary for me to say that scars resulting from an operation of neurectomy are sufficient cause to reject the animal.

FIRING. The mark of a firing-iron is not necessarily an evidence of unsoundness. For instance, an animal may have been fired for what was supposed to be splint-lameness, when perhaps the lameness might not have been located at that point, or the animal might have been fired for a supposed tendon-trouble. Should we find, on examining such an animal, that there is no lesion of tendon, ligamentous, or osseous structures, and that the prospective purchaser does not object to the scars made by the iron, we should consider the region sound.

INTERFERING between the knee and fetlock should be regarded as unsoundness. Of course, in arriving at such a conclusion we should take into consideration the general conformation of the forelimbs. Animals which toe out and stand base narrow are most prone to this trouble. The condition is still more aggravated if the chest is narrow. Horses with such conformation should be rejected in every instance.

Discussion.

Dr. Hawley: I wish to make a remark on one point in regard to interfering. I think I can state positively that about eight out of ten horses that come from the country to the city, and have never been shod behind, will interfere with the first pair of shoes. If you were to condemn all horses that interfere you would have to condemn eight out of ten of these cases.

Dr. Hughes: Interfering as I dealt with it covers interfering between the fetlock and knee only—hitting the shin.

Dr. Walker: Regarding neurectomized horses, you say you would in all instances reject them.

Dr. Hughes: Yes, in every instance.

Dr. Walker: I was consulted a few days ago on a case like that. A party called at my office requesting me to examine a horse for him, belonging to a doctor, that he was going to purchase. The doctor asked two hundred dollars for him. I saw that the horse was neurectomized. The doctor admitted that his horse went lame some time ago, and that his veterinarian stated that there was a nodule on the nerve which had to be taken off. After this was done the horse went all right. I advised the party not to buy the horse.

Dr. Robertson: In regard to the question of shaky knees. Now, I have known many very good horses kept in a barn, especially in box-stalls, during the winter, when suddenly put to work in the spring develop shaking of the knees. I had several cases this summer; one in particular had it in a very marked degree. She was blistered in her back tendon, and has since done her work well. Therefore, one would have to be careful that he should know something of the history of the case before he rejects a horse. Regarding interference, I would echo the sentiments of Dr. Hughes. Of course, interfering of the canon-bone is unsound. I agree with Dr. Hughes that up to within the last year or two horseshoers made a great mistake when shoeing green horses by lessening the circumference of the foot to such an extent as to cause interfering. I would also suggest that in examining a horse, one be very careful if a green horse has been shod and is afflicted with over-reaching. The trouble was that the horseshoer has cut a large amount of the wall, making it as low as possible and raised the horse's foot up behind and also the toe in front, and the consequence was that he clicked at every step he made. As soon as he changed this it lessened the interfering to a very perceptible degree. Use judgment in regard to the amount of wall that is to be taken off and the kind of shoe put on on a green horse. I would recommend for a green horse to cut off just as little of the wall as possible and shoe him as light as possible.

Dr. Ryan: Did you not find that in most cases of sprung-knees a great deal is due to the conformation? The conformation is not correct.

Dr. Hughes: Decidedly. Anyone on a breeding-farm will have noticed it in colts growing up right from colthood. It is a very common thing to find, and he may have a perfect conformation of the shoulder. Standing a horse in a stall with an inclined floor is a common cause. The opinion of some people is that he will straighten up again. I say that in every instance one of those should be condemned.

Dr. Hawley: Supposing one buying a horse would buy him for the show ring; he was an extra highgoing horse of beautiful appearance, slightly sprung in the knees; a horse that the judge in the show-ring would not condemn; a horse that would pass in the show ring as sound. Would he have to be condemned by the veterinarian?

Dr. Hughes: If I were the veterinarian I would condemn him, for if it comes to a question of downright soundness, you would have to throw him out.

Dr. Robertson: I was called a few weeks ago to treat a horse of splendid conformation and high action. He was standing all winter idle, and was remarkably shaky after the first drive. His knees just quivered. The

owner told me he gave him a very hard drive. I recommended rest for a few days, and after treating him he seems to be doing all right. Would you have pronounced him unsound on account of this little shaking of the knees?

Dr. Hughes: My old preceptor gave me good advice in cases of this kind. That is, if you find an instance where you suppose the trouble or lesion is of recent occurrence, be fair to the dealer and to the buyer, and bring them together and say, "Now you can wait for this horse for a week or two. He is a little off, and may be all right in a short while."

Dr. Ryan: In regard to horses cut out in the knees, do you consider this as much a defect as over in the knee position, and do you consider them unsound?

Dr. Hughes: I do; but not as much a defect as going over at the knees. Everybody knows what going over at the knees is, while one cut out in the knees is very seldom noticed. An everyday horse could be possibly passed, but a fine horse I would reject.

Dr. Greiner: Do I understand right, that Dr. Hughes pronounces a horse with a splint without lameness as sound? None of the people that I have to deal with care to buy a horse with a splint.

Dr. Hughes: In answer to this, I would say that Dr. Greiner must educate his people to tolerate splints. I do not attach the slightest importance to the presence of developed splints when they are away from the knee.

Dr. Hawley: In regard to the question of unsoundness, especially small defects. Now, a man that deals in light-harness horses, for instance, is no more a thief than the one who buys them, and, therefore, should be given the same consideration. I claim that no man is fit to examine horses for soundness until he has gone on the market and purchased horses extensively; therefore, a veterinarian in examining horses for soundness ought to consider both sides of the question before he rejects a pair of horses.

L. CAMPBELL, D.V.S.,
Secretary.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

MEETING was called to order by the President, C. R. Ellis, at Greensboro, December 27, 1897. A fair number of members responded to roll-call. Address by the President showed the great necessity of strict sanitary regulations in our State as to meat and milk-inspection. Discussion of this paper led to a motion to appoint each member a committee to aid the Secretary in procuring the signatures of all physicians in the State who would aid in securing said regulations.

Committee on Legislation was appointed, consisting of the President, Secretary, and Dr. W. C. McMakin. Board of Examiners: Drs. Charles H. Lockwood, H. G. Bessent, and H. F. Bauer, one to serve three years, one two years, and the other one year.

Mrs. C. R. Ellis was elected an honorary member, on account of the interest shown by her in the Association.

Dr. John Lockwood, of Washington, D. C., was elected to membership. The Association adjourned to meet in Wilmington in July.

J. W. PETTY,
Secretary-Treasurer.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

IN the absence of the President and Vice-President, this Association was called to order May 4th by the Secretary, at 8.45 P.M. at the Academy of Medicine.

The Secretary then asked the members to appoint a chairman to conduct the meeting. It was then regularly moved and seconded that Dr. Gill act as chairman *pro tem.*; carried. Dr. Gill, thereupon, took the chair and proceeded with the regular order of business. The following members responded to roll-call: Drs. C. C. Cattanaeh, J. S. Cattanaeh, J. S. Cattanaeh, Jr., Delaney, Ellis, Gill, Grenside, Lamkin, Machan, MacKellar, and O'Shea. The minutes of the previous meeting were read and approved.

Dr. Gill, chairman of the Board of Censors, stated that as a quorum of that committee was not present they could not take action on important business in hand; therefore they had no report to offer to the meeting.

Dr. Gill reported for the Ways and Means Committee, in the absence of their chairman, that Dr. Lellman will read a paper at the June meeting on "Multiple Sclerosis of the Brain and Spinal Cord of the Dog," and a second essayist will be procured for the same meeting.

Dr. O'Shea, chairman of the Judiciary Committee, reported that the Governor had signed the jury bill and it is now a law. This report brought forth the applause of the members present.

Moved and seconded, that the reports of the various committees be accepted; carried.

Dr. J. S. Cattanaeh read a paper entitled "Economy in the Practice of Veterinary Medicine." A free discussion followed by all the members present.

Dr. Lamkin then read a paper on "Parturient Apoplexy." This paper also met with a free discussion.

Moved and seconded, that a vote of thanks be tendered to the essayists; carried.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D. V. S.,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The May meeting was called to order by President Pearson at 8 P.M. on the 10th ult. The following members of the profession were present: Jas. D. Mccray, S. J. J. Hager, H. D. Hackler, Otto von Lang, Wm. J. McCoy, W. B. Stauffer, J. Price Vasey, John B. Raynor, Geo. Felton, M. W. Drake, C. J. Marshall, John W. Adams, J. D. Houldsworth, W. H. Ridge, Leonard Pearson, Walter L. Hart, Jas. B. Rayner, T. B. Rayner, A. N. Lushington, W. L. Rhoads, W. Horace Hoskins, C. T. Goentner, Chas. Williams, and Chas. Lintz; also, Dr. J. Cheston Morris.

After the general routine business Dr. W. Horace Hoskins gave a most interesting talk on "Emphysema," covering his subject so well that President Pearson could scarcely get a word from any of the members or visitors on the subject, there being very little ground even for questions, yet discussion brought out diverse opinions as to the question of lesions and treatment. Dr. Pearson then opened the subject of "Army Veterinary Ser-

vice" by telling of the rank, promotion, services, and requisites of the army veterinarians abroad; he also proved that he had given this subject much study and thought, and went at it in his thorough, careful way, giving a complete history of the army veterinarian's position, rank, progress, and education in the Roman, Russian, German, and English armies from the time of Cæsar to the present day. He cited facts to show that the loss due to inadequate veterinary services during the time of war would pay for a well-equipped system three or four times. The discussion on this subject brought forth a number of views as to the best method of advancement.

Dr. W. Horace Hoskins moved that the officers of the Keystone Veterinary Medical Association confer with the officers of the State Association as to the best methods by which \$200 might be raised from the profession throughout the State for the furtherance of army legislation on behalf of army veterinary rank. The President appointed Drs. Hoskins and Rhoads as a committee to take this in charge. Dr. Rhoads moved that the President appoint a committee of three to draft resolutions directed to Dr. Salmon, and pledge the support and assistance of the Keystone Veterinary Medical Association in this work. The President appointed Drs. Hoskins, Marshall, and Allen on this committee.

After the report of the case the application of Dr. Jas. D. Mecray, of Maple Shade, N. J., was considered; having been favorably acted upon by the Board of Censors, he was unanimously elected to membership.

Dr. Pearson appointed Dr. W. Horace Hoskins to report at the following meeting on current veterinary topics that would be of interest to the Association.

The Association then adjourned, to meet June 14th, at which time Dr. Harger will open a discussion on "Quittor," and Dr. Adams will open discussion on "Surgical Methods on Cribbing."

W. L. RHOADS,
Secretary.

MASSACHUSETTS VETERINARY ASSOCIATION.

THE regular monthly meeting was held at No. 19 Boylston Place, Boston, January 25, 1898, President Winchester in the chair. Members present: Drs. Beckett, Cronon, Cutting, Emerson, Frothingham, Hamilton, Lee, Lewis, McLaughlin, Parker, Pierce, Soule, Winchester.

Dr. McLaughlin reported for the Legislative Committee that he thought with the coöperation of each member of the Association the Veterinary Bill would become a law at this session.

The essayist for the evening was Mr. Daniel S. J. Murphy, a student in the Veterinary Department of the Harvard Medical School, who read a valuable paper on "Roaring." A general discussion followed.

Adjourned at 11.30 P.M.

THE fourteenth annual meeting was held April 27th at the Quincy House, Boston, at which there was a large attendance of members.

A business meeting was held in one of the parlors, and the following officers were elected for the ensuing year: President, John F. Winchester, D.V.S., of Lawrence; First Vice-President, E. H. Holden D.V.S., of Springfield; Second Vice-President, S. R. McLaughlin, D.V.S., of Newton; Secretary and Treasurer, Henry S. Lewis, M.D.V., of Chelsea. Executive Committee: Langdon Frothingham, M.D.V., of Boston; L. H. Howard,

D.V.S., of Boston; Howard P. Rogers, M.D.V., of Allston; George Lee, D.V.S., of Brighton; P. J. Cronnon, M.D.V., of Boston.

The Secretary's report showed seven new members during the last year.

The Treasurer reported the expense for the year just passed, \$187.80; received for dues for the same period, \$170.00; on deposit in bank, \$274.86.

The members then adjourned to the banqueting hall with their guests, Mr. Leander Herrick, of the Massachusetts Cattle Commission, and Mr. D. S. J. Murphy, of Cork, Ireland.

The President introduced Dr. J. R. McLaughlin as toastmaster, and the following toasts were responded to: "Our Country's Arms—may they be successful," Dr. Austin Peters; "Our Alma Mater—Harvard University," Dr. F. H. Osgood; "American Veterinary College," Dr. L. H. Howard; "McGill University," Dr. John M. Parker; "Massachusetts Cattle Commission," Mr. L. Herrick; "Our Committee on Entertainment," Dr. Langdon Frothingham; "Usefulness of the Cow," Dr. W. E. Peterson; "The Absent Ones," Dr. J. H. Stickney; "Massachusetts Veterinary Association," Dr. J. F. Winchester; "Our Guest," Mr. D. S. J. Murphy; "Harvard Alumni," Dr. E. C. Beckett; "United States Bureau of Animal Industry," Dr. John S. Slee; "McGill Alumni," Dr. B. D. Pierce; "Watchdog of the Treasury," Dr. Henry S. Lewis.

Having done justice to all the good things served by the landlord, the evening was closed by the members standing and singing "Our Country," "Star Spangled Banner," "Should Auld Acquaintance Be Forgot."

HENRY S. LEWIS,
Secretary.

COMMENCEMENT EXERCISES.

McKILLIP VETERINARY COLLEGE.

THE second annual commencement exercises of this college were held in the college auditorium at 8 P.M., March 30, 1898.

The exercises were opened by an invocation by the Rev. E. C. Snyder, after which Prof. L. A. Merillat delivered the "Baccalaureate Address." The "Salutatory" was rendered by Dr. Louis Wagner; "Class History," by Dr. A. C. Spurling; "Class Poem," by Dr. C. B. Davis, of the graduating class. The degree of M.D.V. was conferred upon the following students by President M. H. McKillip: George J. Dandurand, Chicago; Clarence B. Davis, Chicago; James H. Hawke, Chicago; Frederick J. Leith, M.D.C., Chicago; Addison C. Spurling, West McHenry; Louis Wagner, South Chicago, Ill.; William S. Williamson, San Francisco, Cal.; William Wilson, Menomonie, Wisconsin; and W. E. A. Wyman, V.S., Post-Graduate, Charleston, South Carolina. Dr. J. H. Hawke was President and Dr. W. L. Williamson, Secretary of the Class of '98. The benediction closed the exercises. One member failed to obtain the necessary average.

CHICAGO VETERINARY COLLEGE.

THE fifteenth session of the Chicago Veterinary College terminated with appropriate exercises on March 23d at 2 o'clock in the college auditorium.

The degree of Doctor of Comparative Medicine was conferred on the following gentlemen: George E. Totten, Bement, Ill.; O. O. Wolf, Ottawa, Kan.; Wm. A. Withers, New Orleans, La.; C. G. Warner, Aurora, Ill.; James M. O'Reilly, Merrill, Wis.; James L. Kling, McGrawsville, Ind.; D. A. Piatt, Lexington, Ky.

The trustees' gold medal for highest general average in final examinations was awarded to Dr. G. E. Totten. The prize in theory and practice was awarded to Dr. O. O. Wolf. The prize in anatomy, not having been won by a Senior, was carried over to next year.

The class valedictory was delivered by Dr. O. O. Wolf, and the doctorate by Prof. A. H. Baker. The address of the professor was replete with good advice to the young doctors, giving them some valuable hints as to how to successfully conduct a practice; how to advantageously give expert testimony in court, and dwelt at length on the necessity of sobriety and industry in order to maintain a respectable position in society, to read the professional journals, join their local, State, and national associations, thereby giving themselves a chance to profit by the investigations, observations, and experience of older members of the profession, and wear off the diffidence and narrow-mindedness that always result from non-intercourse with others. He said by way of explanation of the smallness of the graduating class that this was the connecting link between the two- and three-year courses, and under ordinary circumstances there would be no graduating class this year, but on account of allowance for former attendance and attendance at other veterinary colleges there were the few mentioned above, and that what they lacked in numbers they made up in quality, most of them having passed in the honor class, and that the C. V. C. expected to add materially to her reputation through the Class of '98.

He also expressed the opinion that the profession in the West would soon see brighter days; that the depression of the last three years had already given way to marked improvement, which bids fair, in fact, is certain, to continue to improve till in a year or two more the practice will equal, if not exceed, that of 1892. The farmers of the West are in excellent condition financially, having been able to pay their debts during 1897, and are getting rich this year on account of the high prices of grain; and they are breeding all available mares to supply an impoverished horse-market. Good draught-, coach-, and driving-horses are selling now at old-time prices, with every prospect of going much higher long before time enough will have elapsed to grow them. Breeding of horses, he said, in his opinion, would be confined to the farmers hereafter, the big ranches having found it a losing industry; their big horses were not big enough; their drivers were not fine enough, and the inevitable brand that each one carried was so objectionable that they always had to sell cheap, and, unfortunately, pulled the whole race in this country down with them. All of this has stopped, never to return. Veterinarians will profit by this change more than any other profession, as they have suffered more in the past from the great depression.

The veterinary colleges will reap their share of benefit also. The classes will be larger, and more interest will be taken; the students will not feel lonesome in the lecture-room as in the past two or three sessions, on account of the small attendance. There will be no danger of overcrowding the profession for generations to come; the diversified farming that is

rapidly developing will in time spread over the entire country, the result of which will be more stock-raising of all kinds, creating in turn an increased demand for veterinarians. The veterinary sun is not setting, but instead will shine brighter than ever after having emerged from the partial eclipse that has existed for the past three years.

PERSONALS.

Dr. G. Howard Davidson, of Millbrook, will have charge of the cattle at the New York State fair to be held at Syracuse.

Dr. A. W. Biting, of Lafayette, Ind., has an article in the May 11th *Breeders' Gazette* on "Dipping Sheep for Ticks."

Dr. Leonard Pearson was a visitor to Washington in May, visiting his brother, Mr. R. A. Pearson, of the Dairy Division of the Department of Agriculture.

Dr. W. H. Dalrymple, of Baton Rouge, La., was elected a vice-president, representing the sixth Congressional district at the convention of the Louisiana Sanitary Association in May.

Among the veterinarians noted at the Philadelphia horse-show were Drs. A. W. Clement, Baltimore, Md.; W. H. Ridge, Trevoise, Pa.; W. H. Montgomery, Chestnut Hill; S. D. Larzelere, Jenkintown, Pa.; Otto G. Noack, Reading; Leonard Pearson, W. Horace Hoskins, C. J. Marshall, M. W. Drake, S. J. J. Harger, W. N. Fuller, A. F. Schreiber, and Otto von Lang, of Philadelphia.

Dr. F. H. Osgood, of the Massachusetts Light Artillery, has been called to duty, looking to a patrolling of the eastern coast of the Bay State as a safeguard against any Spanish invasion.

Dr. John T. Lee, graduate of the American Veterinary College, located at Tacoma, is President of the State Board of Health and Bureau of Vital Statistics of Washington.

Dr. R. S. Huidekoper, of New York, has been made a commissioned officer in the army, and given the rank of lieutenant-colonel. He will be assigned to duty in charge of one branch of the medical service.

Dr. Leonard Pearson, of Philadelphia, Pa., was an inspector at the horse-show of the Elk Ridge Hunting Club at Baltimore in May.

Veterinarian W. G. Langdon succeeds Dr. T. D. Hinebauch at the North Dakota Agricultural College and Experiment Station.

S. G. Hendron, of York, Pa., graduate of the Veterinary Department of the University of Pennsylvania, has received an appointment under the Bureau of Animal Industry in the meat-inspection service, and directed to report for duty at Indianapolis.

Mr. J. Preston Hoskins, one of the staff of contributors to the JOURNAL, has just been elected to the position of Assistant Professor in German by the Board of Trustees of Princeton University.

Dr. Harry Marshall, Class of '97, Veterinary Department, University of Pennsylvania, is conducting a drug-store in conjunction with his practice at Georgetown, Del.

Dr. W. E. Weihe, formerly of Scranton, Pa., is now associated with the State Board of Agriculture of North Carolina as crop-statistician.

Dr. Wm. Jopling, of Owosso, has served six years as Secretary of the Michigan Association, during which trying period, financially, among the veterinary profession, this association has grown in influence, power, and usefulness, largely attributable to his tireless labors in this direction.

Dr. J. R. Mitchell, of Evansville, Ind., after two days' service in the Bureau of Animal Industry work at Kansas City, resigned his post and returned to his home.

Dr. W. C. Fair, of Cleveland, O., conducts the veterinary department of the *American Sportsman*.

POINTS.

The United States army is a daily purchaser of horses in the great centres west. It is stated that each battery of artillery will require 100 horses, infantry regiments about 20 each, cavalry regiments about 1200 to 1300; each field-officer is entitled to two horses. Cavalry and artillery horses in the Chicago market are in strong demand, and contract prices range from \$85 to \$100 per head. Artillery horses must weigh from 1100 to 1250 pounds each, on the driving order finish, and of solid color. The government will buy only horses with full tails.

The National Horse-breeders', Dealers' and Exhibitors' Association, recently formed at Chicago, will urge government inspection of stallions used for public breeding purposes.

The *Breeders' Gazette* of May 18th strongly urges the giving of rank to the veterinarian in the army, and points forcibly to the changed conditions now than existed fifteen or twenty years ago, when there were but few educated veterinary surgeons.

Clay, Robinson & Co., of the Chicago stockyards, have offered one hundred dollars in gold for competition among the students of the Iowa Agricultural College in the judging of fat stock, including steers, wethers, and hogs.

Many of the reindeer imported for use in the Alaskan region are dying; lack of proper food and other conditions are operating causes.

At Chicago stockyards a charge of ten cents is levied on every horse entered, to cover the State veterinary inspection service.

The black hornfly has made its appearance in the central west, and cattle during the hot months are likely to make little flesh with this torment about.

A model of a Chicago stockyard sheep-dipping tank will be on exhibition at Omaha.

Secretary of Agriculture Wilson has called the attention of the Secretary of War to the importance of having good, competent veterinary forces with the United States cavalry. There are said to be few veterinarians attached to our army now who are graduates of regular veterinary schools. Secretary Wilson also calls attention to the fact that the United States Army is the only one in the civilized world in which veterinarians do not hold commissions. This is one reason, he thinks, why the most competent men in the profession have not sought service in the army.—*Breeders' Gazette*, May 25, 1898.

So-called "thumps" in pigs, due to excessive plethora of the neck and forequarters, arising from strong feeding and lack of exercise, a functional derangement of the circulation, is much benefited by changing the food to the less fattening kinds and the enforced exercise of those afflicted.

Last year Boston punished forty-eight offenders for selling impure milk.

The great Empire State (New York) boasts of having expended for the services of veterinarians and their expenses during the last eleven years, \$6000.78. Surely her great livestock interests and public health must be of little moment if such a paltry sum was sufficient to guard these avenues of health and wealth.

The Northampton County (Pennsylvania) farmers have petitioned the State Livestock Sanitary Board for reimbursement of butchers who have purchased for slaughter, unknowingly, tuberculous carcasses, and thus remove one of the dangers of having this diseased meat thrown upon the market for consumption.

Chicago markets handled 98,000 horses in 1897; over 50,000 horses exported in 1897.

England, Ireland, Scotland, Belgium, Germany, France, Norway, Denmark, Sweden, Italy, Africa, Mexico, and South America are buyers of American-bred horses.

Spratts' Patent Company wish to announce to their customers that the recent advance in the price of wheat will not make any difference in price to their customers, owing to the fact that they were fortunate enough to secure long contracts for wheat; and also to answer the many inquiries as to the extent of the injuries of their Vice-President, Mr. G. G. Cleather, who was reported as being seriously injured, that the accounts were very much exaggerated, and that he is now quite well again.

The many friends of Mr. A. J. Cassatt will be rejoiced to learn that in the disastrous fire at Chesterbrook farm, the famous hackney stallion "Cadet," and the great stallion, "Bard," were gotten out in safety. The very valuable herd of Guernsey cattle were destroyed.

FOR SALE OR LEASE.—Having permanently withdrawn from private practice, I offer at a sacrifice and on easy terms, my Infirmary, Offices, and Residence at Bloomington, Illinois, or would lease to a responsible party. Property centrally located; field for practice unsurpassed; patronage established in 1879 still conducted on premises.

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THE PROGRESS OF VETERINARY SCIENCE.

BY GEORGE HILTON, V.S.,

WINNIPEG, MANITOBA.

THE hand of time has fallen upon its endeavors to right the wrongs of past ages, and the dark doings of empiricism, superstition, and cruelty are beginning to yield to the influence of the lights of education, reason, and intelligence. Old prejudices are being wiped away, and the full value of the study of comparative medicine in its broadest sense is being better and better appreciated. Although it is a decided fact that veterinary science is still only in its infancy, its days have been far stretched, for we find its first steps coinciding with the medical profession in its very earliest periods, which are buried in the history of ancient Egypt and India.

It is well known that the ancient Egyptians owned and cared for the domestic animals, especially the ox, ass, goat, and goose, and evidence has also been obtained that antelopes were bred in immense numbers by these ancients; but sheep and other animals gradually displaced them as years passed on. Glancing over the customs of these people as far back as two thousand years before the Christian era, we find that animal property constituted their principal wealth. As they travelled through Asia, or gradually worked their way into Europe and Africa, accident and disease attacked their flocks, and attempts were at once made to save valuable property, and thus veterinary medicine began in a very insignificant and crude manner. As time wore on human medicine shared the devoted study of its ablest men; but their practical knowledge of anatomy had to be obtained from veterinary subjects, the times not permitting the dissection of human bodies, and thus from the

¹ Read before the Manitoba Veterinary Association, February 15, 1898.

beginning of the medical world the two branches of medicine were linked together. The years rolled on, and more and more attention was devoted to the study of the diseases of man, but veterinary medicine was relegated to an inferior position. This tendency increased until, as a result of certain influences, domestic animals became both valuable and indispensable, and as the numerous diseases swept them off by thousands, threatening health and interfering with the prosperity of the people, it became decidedly apparent that something should be done toward controlling the causes of such havoc. However, as the numbers in livestock increased without a corresponding increase in veterinary science, disease became widespread and raged through the numerous herds with unflinching rapidity and certain mortality. Affairs began to look serious in the extreme, and consequently investigations were persisted in by the ablest men the times could produce, for the health and wealth of the public were now at stake.

During the early days of the sixteenth century men who were endowed with the true veterinary ambition, summing up what little knowledge was available, placed it in books of agriculture. Thus the next step to success was attained, and veterinary literature was afloat on the realms of time. Although it was in a very unscientific manner, and not looked upon from the medical standpoint, it has proved to be with the polished touchings of time a most scientific and deep study. In fact, in those olden days, writings on veterinary medicine were to be found in large books on rural affairs. Books on horsemanship and the breeding and care of animals were also afloat, but a scientific treatise on veterinary medicine could not be found, with the single exception of the *Anatomy* of Carl Ruini. This work was issued in 1590, and formed the foundation of study for an independent science. Strange as it may appear, the other branches of our science developed so slowly that it was not until two hundred years later that works on the other fundamental branches, equal to the work of Ruini, were available.

However, sufficient progress was made during this early period to indicate that veterinary science was valuable, and as changed conditions developed in the habits of the people, in agriculture, transportation, and in warfare, the infectious diseases of animals became more widespread, causing more oppressive losses, and during the seventeenth and eighteenth centuries we find distemper, influenza, glanders, rinderpest, pleuro-pneumonia, foot-and-mouth disease, and anthrax raging in their varied localities with a deter-

mined severity, marking their victims along their course. During the last century, while all the communicable diseases prevailed more or less extensively, rinderpest was most prevalent and caused the greatest amount of distress and loss, passing through the southern provinces of Russia, Poland, and many of the States of Germany, Hungary, Austria, Italy, France, and Switzerland. It is stated that in 1740 the virus of this disease was so virulent that 200,000 head of cattle succumbed under its influence in Holland, while in Italy 70,000 head died in one year, and during the entire century this disease continued with greater or less severity, and we find it again between 1744 and 1746 robbing Holland of 200,000 more of its valuable livestock. Seemingly satisfied with its diastrous campaign in these countries, rinderpest broke out in Nottingham and Leicestershire, England, and carried off 40,000 cattle, while in Cheshire it wiped off 30,000 head in the short period of six months. Steps were now taken to check the progress of this notable plague, and in consequence 80,000 animals were slaughtered before this was accomplished. Foot-and-mouth disease was also prevalent during this period in France and other Continental countries, while anthrax rendered it almost impossible to rear livestock in many localities in Europe; glanders was prevalent in many districts. This terrible scouring of the country, by the loss of 200,000,000 cattle, meant a tremendous loss, amounting to \$4,000,000,000, valuing the animals at \$20 per head. Consequently, men of ability plunged deeper with prying inquisitiveness into the veterinary world.

Somewhere about the abatement of this disastrous season the stage-coach commenced to open up the country, and in a very short time became the fashion of the day. Military circles became more extensive, and horses naturally came largely in demand. Considering the unfortunate past, and the increasing demand for horses, the field now appeared ripe for the commencement of veterinary teaching, and in 1762 a Frenchman named Bourgelat opened the first school in Lyons. This was followed a year later by a second school at Charenton, near Paris, and still later by a third at Toulouse. These colleges were quickly patronized, and students were sent by all of the principal rulers. Unfortunately, veterinary literature was scarce, and the education imparted by these young schools did not satisfy the eye of the public. Many of the students proved themselves basely ignorant, and a gloom was cast over the profession.

Not long after this period a remarkable change occurred. The

locomotive was introduced, and the old-fashioned globe seemed truly shaken by its intruding inhabitants. The result of such a stride was a question for the future. However, as it can be imagined, transportation increased steadily and rapidly, and the old world seemed to be lost in amazement. Under the old condition local wants were supplied entirely by local products, and what a locality did not produce was not consumed in that district. With the increased facilities for transportation the wants of the people became liberalized, at least as rapidly as the means for supplying them. Consequently a remarkable change commenced in social life, and especially in food products. It has been said, "that while meat is at least three times as expensive as it was sixty years ago, about three times as much per capita is used by the inhabitants of European countries," making it appear as though the degree of activity of a people is indicated by the amount of flesh consumed. All these changes have led to an astonishing growth of the live-stock industry, so that the public is far more dependent upon it now than it was in the last century, when the first veterinary schools were established. It appears as though the growth of veterinary science has been proportionate to the growth of the industry that is protected by it, and without such development in the veterinary world the livestock industry could not have attained its present proportions.

In the early decades of veterinary science it became quite evident that the schools then in existence were not thoroughly filling their functions. Therefore, after a sufficient number of well-trained veterinarians had developed, a thorough reorganization was accomplished, and the schools conducted under higher and more scientific principles, which was perfectly essential to bring the veterinarian to his path of duty.

The last century has, indeed, been a notable one. Reviewing its path, many are the flashes of genius that have illuminated the wide world of medicine, and have fixed for themselves stars in the firmament of science which will never cease to shine. As the years were added one by one to the past, they revealed to the minds of the investigators of science that many of the diseases of animals were communicable to man, and it has gradually become the duty of the veterinarian to guard against the first appearance of any contagious disease, both for the sake of the animals and that of the human race. On the other hand, there has been discovered the protective action of some diseases of animals on the human system, the one most widely known being vaccinia against smallpox and the anti-

diphtheritic serum prepared from the blood of the noblest of quadrupeds. The question as to how these act is one of the most interesting problems of modern science, and gives plenty of scope for a future genius. With this decade has also come the general acceptance of the bacterial origin of disease, and no question of medicine in late years has occupied so much space and thought, or caused so much scientific research and experiment as the origin, development, and communication of disease. We to-day have a knowledge, though yet limited, of organisms infinitely small, the existence of which was not suspected by the ordinary practitioner till within the last few years. We have a faint idea of the great good done by Bonnet, who, between 1740 and 1793, advanced the theory of universal dissemination of seeds and spores, known as the pre-existing germ-theory. (This is the oldest and probably the most widely-accepted theory ever known in the history of medical science.) During the same period Needham came to the conclusion that infusion of organic matter in hermetically closed vessels, after boiling, brought forth minute organisms, which is known as the vegetative or producing-force theory. The method of study introduced by Needham forms the basis of all subsequent experiments on this question, as well as the culture researches in connection with the organisms of disease. Dr. Budd, in 1849, claimed the body was invaded by organisms, which, under certain conditions and surroundings, caused infectious diseases; but it is only of late years—in fact, since 1870—that we have been shown the relation of microorganisms to those diseases which most closely interest the veterinarian, as anthrax, septicæmia, cholera in its various forms, glanders, rabies, pleuro-pneumonia, and the greatest of all scourges, tuberculosis, which Koch and Pasteur have so enlightened in past years. The satisfying of all the requirements essential to prove a germ causative of a disease is difficult, and has led to what may be termed a special branch of the medical art. This theory, with the aid of veterinary science, is gradually bringing to light how much of the physical disease and death of man is due to direct transmission from corresponding disease in our domestic animals. Again, looking into the kingdom of parasites, we find some of the most deadly of man's tormentors coming directly from our livestock. *Trichinia*, *echinococcus*, *cysticercus bovis* and *actinomyces* may be mentioned in this connection.

The more intimately we acquaint ourselves with the subject of communicable or contagious disease the more deeply are we impressed with the fact that there is the closest relationship and inter-

dependence between these affections as they appear in man and animals. In fact, in many cases, as in the echinococcus, and the trichinia, the successive appearance of man and animal as hosts of the parasite, at the different stages of its development, a condition of its propagation, and, so far as known at present, is a matter of impossibility for these parasites to live out their existence in one host. In the case of contagious affections due to microbes the same alternation from man to beast is not so essential to their maintenance, and yet the intimacy of the relation between the domesticated animal and the civilized man is so close that many such diseases are largely propagated in this way. Thus glanders and anthrax stand out largely as industrial diseases.

Of late years the general public has been more exercised over tuberculosis than any other complaint which is common to man and beast. There is doubtless good reason for this. This white plague of the north, by far the most deadly affection of man, has also been the most prevalent chronic disease of our dairy herds, and its extension in the human race bears a remarkable ratio to the utilization of the bovine races for dairy products and beef, and concurrent testimony obtained on so large a scale, and from such widely different sources, is not to be lightly set aside. The very latency of the disease in certain systems, and the absence of all prominent outward manifestations of illness, are potent factors in the propagation of the infection. A disease that is quickly fatal, like smallpox, yellow fever, or cholera in man; or anthrax, rinderpest, and Texas fever in cattle, is easily dealt with, since, whenever the germ exists in connection with susceptible subjects, its presence will be speedily manifested and can at once be circumscribed and crushed out. These make their attack in broad daylight, and we are warned to fortify every pass and strengthen every defence. But the stealthy tuberculosis, which glides up in the darkness and silence, and, as it were, saps our walls of defence without visible manifestations or audible sound, and suddenly appears, when least expected, in the interior of our most trusted keep, is by far the most dangerous enemy.

As bacteriologists we recognize incompatibilities and antagonisms between the living cells of the animal body and their products, on the one hand, and the pathogenic microbe and its products, on the other. How far can we avail of these to strike a balance favorable for and protective to the animals? We are as yet on the mere confines of this great science of bacteriology. In the vast microscopic world, full of attractions and repulsions of living cells and

probes, or neutralizations and physiological antagonisms, of agglutinins, ptomaines, toxins, and enzymes, there are many and great promises for the future of preventive and therapeutic medicine. Without undue arrogance, it may be asserted that to the veterinarian has been allotted a large measure of responsibility in connection with this work, and we find at the present time veterinary science abreast with the times. Let us consider for a moment what good has been accomplished by the veterinary schools and what effect their work has had on national life and prosperity.

Unfortunately, the most effective work has been in the direction of controlling the infectious disease of animals. Rinderpest has been exterminated from Europe, and does not prevail anywhere extensively, excepting in South Africa, where it has been numbering its victims by thousands. Contagious pleuro-pneumonia has been controlled to such an extent in Europe that it does not cause serious losses at this time. Anthrax has been studied with such success that an efficient vaccine has been discovered, by means of which animals can be inoculated, and the development of the disease prevented. Moreover, so much light has been thrown on the life-history of the germ that we now know what measures must be taken to prevent the spread of this disease or its establishment in a certain locality after it has been introduced. Foot- and mouth-disease, although it still occurs in most of the Continental countries, has succumbed to the veterinary police measures that are now enforced to such an extent that it has not caused serious loss for a considerable number of years. Mange of horses and scab of sheep, diseases that were formerly dreaded so acutely by horsemen and shepherds, are now comparatively rare. Distemper and glanders of horses occur from time to time, but are kept in check so well that they no longer seriously menace the horse-breeding industry. Texas fever, a disease which formerly destroyed thousands of cattle every year in the United States, has been studied so thoroughly, and preventive measures taken, that outbreaks of Texas fever are practically unknown north of the "Texas fever line." This can also be looked upon as one of the triumphs in veterinary medicine. Hog-cholera is a disease upon which a good deal of light has been shed during the past few years, but we are still without an effective means of preventing its ravages. Tuberculosis, again, is an affection that is arousing much discussion and occasioning extensive losses, and leaves a wide field open for future investigations.

The discoveries in serum-therapy are of equal interest and im-

portance to the physician and veterinarian, and much of this recent development results from the work of distinguished members of our profession. The international trade in livestock has developed enormously during the past few years. It is a comparatively small matter to ship cattle three, four, or five thousand miles, and, with modern facilities, these journeys can be made in a very few days. International trade in livestock and livestock products, such as hides, skins, and wool, has also reached immense proportions. These also are carried quickly between points on opposite sides of the world. It will thus be seen that without proper supervision it would not be difficult for the most dangerous diseases to be carried long distances from the most remote countries into previously uninfected territory. But every civilized country has a force of efficient veterinarians, and a more or less perfect system of quarantine and control, by means of which the ravages of disease that would otherwise be conveyed by this international commerce are avoided.

In its relation to public health, veterinary science is growing in importance; the meat- and milk-supply of large cities is now coming under the supervision of the veterinarian.

The relation of the veterinarian to the improvement of livestock, through the introduction of improved breeds and species, and improvement by care and selection, is a very important one.

In conclusion, allow me to turn to another channel—"the turf." Here we find a tremendous change, due to the applied skill and teachings of the veterinary art. In 1818 the first trotting performance took place in America, when a horse by the name of Boston Blue was driven a mile in three minutes. Later, in 1825, the New York Trotting-club held its first meet, with three entries under the saddle—Screw, Screwdriver, and Betsy Baker. Time, first heat, 5.36; second, 5.38, being at the rate of 2.50. As time passed on greater interest was taken by the sporting community, and the numbers and quality of the race-horse gradually increased, and coming to 1859 we find the world astonished by Flora Temple's performance in 2.19 $\frac{3}{4}$. As the news flashed over the country the opinion was freely expressed that the limit of speed in the harness-horse had been reached. Eight long years proved this erroneous, when, in 1867, Dexter performed it in 2.17 $\frac{1}{4}$ at Buffalo. He was king for four years, when in turn he was dethroned by Goldsmith Maid, who, in 1871, trotted the mile in 2.17, reducing it to 2.16 $\frac{3}{4}$ the following year, and still, two years later, in a trial against time, she lowered it to 2.14. From this on the race-horse has gradually

increased in speed and quality, and at present we find Star Pointer as king of pacers, with the remarkable record of $1.59\frac{1}{4}$, while Salvator holds his place among runners with the mark of $1.35\frac{1}{2}$, thus showing a wonderful result of the achievement of skill.

Lastly, we find that we are the members of a profession that is evidently destined to take the foremost rank in the science of medicine. Remembering it is the men who give the dignity to the profession, and not the profession to the men, it behooves us to bear ourselves in our relations to others in a manner that will always throw upon our profession the utmost honor and respect.

PUERPERAL SEPTICÆMIA (PARTURIENT APOPLEXY,
MILK-FEVER, ETC.).¹

BY J. L. CLARK, V.S.,
STRATFORD, ONT.

THERE is no subject in the whole range of veterinary practice that has given rise to so much discussion or is so important as that which we now propose to discuss. The various terms that have from time to time been applied to the disease—parturient apoplexy, milk-fever, etc.—indicate to some extent the views held regarding its pathology. The term puerperal septicæmia, though familiar to all practitioners, so far as I know, has never been applied to the condition familiarly known as parturient apoplexy, and I believe as the pathology of the disease becomes recognized the term will be approved by all veterinarians.

Septicæmia is caused by the entrance into the blood of a poison absorbed from a wound the discharge of which is putrid. Pathologists recognize two distinct forms of the disease: (a) Septic intoxication, or sapræmia, in which there is absorbed into the blood the chemical products or ptomaines of putrefaction. The quantity of toxin does not increase after absorption, so that the effects are proportional to the amount absorbed. (b) Septic infection, in which there is in the blood a specific virus which increases in the system, producing its toxins there, so that, unlike septic intoxication, its effects are not proportional to the original dose.

Bacteriologists have shown that the process of putrefaction is a fermentation dependent upon the presence in dead animal matter of pathogenic microorganisms. There are various forms—round,

¹ Read before the Western Ontario Veterinary Association, December 29, 1897.

oval, rod-shaped, cylindrical, spiral, etc. Those giving rise to septicæmia belong to the class called micrococci, and are of two varieties, called streptococcus pyogenes aureus and staphylococcus pyogenes aureus.

The various conditions, viz., plethora, heavy milkers, debility, season, etc., that are given as causes of the disease, we regard only as predisposing causes, believing the true causation to be infection of the uterus or any part of the parturient canal by the micro-organisms already mentioned. The condition of the uterus and genital tract after delivery presents conditions favorable for the absorption of septic material. In the uterus there is the site of placental separation between the cotyledons and placenta, through which absorption may readily occur. Again, inefficient uterine contractions from any cause, prolonged labor, plethora, debility, etc., lead to retention of portions of foetal membranes, foetal matter, muco-secretion, blood-clots; these furnish ample material for the growth of bacteria. Putrefaction results, ptomaines are absorbed, and the animal is afflicted with puerperal septicæmia.

Morbid Anatomy. Blood, dark in color, and may be imperfectly coagulated. Heart flabby; small extravasations of blood beneath pericardium. Peritoneum, pleura, liver, and kidneys swollen and full of blood. Spleen swollen and soft. Mucous membranes of alimentary canal intensely congested; the red blood-corpuscles disintegrated, thereby causing the dark blood and the tissues and vessel-walls to be darkly stained by liberated hæmoglobin. The petechiæ found beneath the serous membranes are due to the capillaries being blocked by clumps of corpuscles. The viscera are congested with venous blood due to feeble cardiac action. Uterus soft, swollen, and imperfectly contracted. Decomposing organic matter present in uterus, and often severe endometritis present.

Symptoms. The symptoms are familiar to all: Restlessness, paddling with the hind feet, rumination ceases, secretion of milk stops, paralysis of posterior extremities, sometimes coma, sometimes delirium, contraction of muscles of neck, etc., rapid respiration, high pulse, elevation of temperature. These symptoms all arise from the absorption of the virus from the site of infection, and their severity depends upon the amount absorbed and the resistance offered by the animal tissues to the invading organisms and their chemical products.

Diagnosis. It is impossible, without examination of the blood, to distinguish between septic intoxication and septic infection, as

the symptoms presented by the two affections are identical. To diagnose septic infection a culture from the blood must be made and the streptococci recognized by microscopic examination.

Treatment. Thoroughly clean out uterus by hand, removing all decomposing matter; inject uterus with a solution of carbolic, creolin, or hyd. perchlor. (1 : 1000 or 2 : 1000). Relieve bowels by injections where restlessness, with muscular contraction, is present. Give antispasmodics, of which I have found chlor. hydrate, pot. brom. with spts. ammonia aromat., as a mild diffusible stimulant, most useful. Where heart is weak, digitalis, fl. ext., alcohol and liq. strych. are indicated.

In early stage, where pulse is full and bounding, I recommend a copious abstraction of blood, which relieves the congested organs and diminishes the toxins in the circulation and acts as a cardiac stimulant. In early stages I can also recommend the following: 1st, Aconite, fl. ext., ʒj; alcohol, ʒij; 2d, Belladonna, fl. ext., ʒij; alcohol, ʒij. Sig. One teaspoonful, alternating every fifteen minutes until, commencing with the 1st, four doses have been given; then, if any improvement, give nux vomica, fl. ext., ʒx., every hour; if no improvement, repeat.

There have been cases recorded where the disease has manifested itself before parturition and after abortion. You will always find the uterus in that flaccid condition accompanying such cases. Where the uterus is feebly contracted after the douche, give ergot.

ROUP OR CANCER: CAUSE AND TREATMENT.

BY H. A. STEVENSON, M.D., C.M.,

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HAVING always been interested in the rearing of chickens, and latterly, since 1891, in company with Dr. Niven, of this city, in the rearing of pheasants, my attention was often drawn to certain of the birds which seemed to have caught cold; afterward their wings drooped, and they invariably died. Treatment seemed of little avail.

In rearing young pheasants some of the young birds, after they had reached a certain age, would first attract attention by their droopy wings, death following soon after. Others shortly became affected in the same way, and died off rapidly, the total loss usually being considerable; sometimes half the flock would die off. On examining the mouths, a small whitish patch could be seen under

the tongue, and by looking carefully similar small pinpoint patches would be visible on the roof of the mouth. These patches are pathognomonic of roup or canker.

Symptoms. The first symptoms of roup are not manifest for several days after the bird has been infected by the germ which causes the disease. On examining the mouth of the chicken which had been infected a few minute patches not larger than a pin's point may be seen, and the temperature, if taken per rectum, generally shows a rise of $\frac{1}{2}$ to 1° . The temperature may be as high as 107° , and the hen going around apparently well and feeding well meantime. In a few days it gets mopish, and the eyes may swell, and, shaking its head, it gives a sound like "pit." In some cases it may appear to affect the eye only, the lids become œdematous and closed, and the eye may be even destroyed. Last month Dr. Niven had to remove the eye of an infected bird. The eye had been destroyed by the growth of the membrane, but after removal the bird recovered. In some cases the membrane creeps down the trachea or up into the nose, and from there it may affect the eye.

Roup is the cause of death in about 80 per cent. of young chickens that die. In taking up almost any poultry journal the reader is struck with the great number of roup specifics advertised. The diversity of these so-called specifics proves their worthlessness. I have tested a number of them. Such a variety of cures could not but fail in the treatment of a disease of such uniform character. It is a disease that presents the same clinical picture in nearly all cases. The symptoms, in the main, are the same, though some may have the foul-smelling discharge and others may be without it. Even poultrymen differ as to what roup is, and in asking poultrymen to bring to me chickens affected with roup, some brought in those without the offensive, foul-smelling discharge as roup, while others brought those with the offensive discharge as canker, and some said that they had some cases of roup which had become canker because the offensive discharge had appeared. Some birds affected with roup have a very disagreeable odor, but this odor has nothing to do with the disease, for the germ that causes this odor will produce the same odor when cultivated on blood-serum tubes, and the odor soon penetrates the whole incubator. This germ has nothing to do with the recovery of the bird, but it is generally found in most acute cases, and the bird recovers more quickly under treatment, probably because this discharge draws attention to their condition sooner.

Temperature. As to temperature, I think 105° is the normal temperature for a fowl. Chickens affected with roup have a temperature of 107° to 108° generally, but the temperature may run anywhere between 105° and 108.2° . There are other variations in temperature in healthy hens, which I have thought it is not necessary to mention.

Sequelæ. Paralysis. In quite a few cases paralysis result. Many chickens which have recovered from roup seem to be affected with a snuffling from the nose similar to that present during the attack; but this is not due to the disease being not cured, but to a paralysis of the palate muscles, and this effect will pass off in time.

Leg-weakness in Fowls. This is another form of paralysis which sometimes occurs. In 1892 I had a black Minorca cock that was troubled with what is called "leg-weakness," and finally it became so paralyzed that it could not stand, and died from starvation, not being able to get sufficient food. The postmortem showed a neuritis of the nerves supplying the legs. Since then one other case, which is described below, died in the same way. I have seen leg-weakness in other coops from the same cause. I think that nearly all cases of leg-weakness are due to roup where it is not due to injury.

Bacteriology. I believe roup in chickens to be similar to diphtheria in man, and roup to be caused by a specific germ which appears to me to be identical with the Klebs-Löffler bacillus. There is present in all cases of roup or canker this same germ. There are also, as is to be expected, several other varieties of germs present. Streptococci do not seem to be a very common associate, several forms of other cocci (staph.) and several forms of rod-shaped bacilli are present.

Contagion. As to infection from one fowl to another, it is a very communicable disease, even after the birds have been apparently cured. It may be conveyed by the drinking-dishes and feeding-troughs, as is shown in one experiment where I allowed one cock (mentioned above) to go without treatment for a time. The bird recovered with treatment, but developed leg-weakness. I then put him in with two rabbits and fed them all on grain from a small dish, so that their heads would rub together. The one rabbit developed the membrane in the eye, and died without treatment. The other developed the membrane in the nose and throat, and died. Cultures showed the same bacillus of roup; the postmortem showed the blood and organs sterile. No *coccidie* in either rabbit.

Immunity to Roup or Canker. To determine if the treatment

by the serum given below would confer immunity, I put one cock infected with roup and one well hen together in a bag for about four hours, and then immunized the hen by injecting about 175 units; the hen escaped the disease. Then another cock, healthy, from another yard was put in the bag with the infected one and not immunized, and he developed the disease; then he was injected with the serum, 200 units, and he made a good recovery.

Marketing of birds which have been infected should be prohibited for three months after they have recovered, as they may easily spread the disease up to about this time. Birds suffering with roup should be removed from the rest of the flock and put in a coop by themselves where none of the rest of the birds can get near them, and separate drinking-dishes and feeding-pans used. After handling an infected bird the hands should be thoroughly washed with soap and water.

I believe roup and canker to be the same disease, a disease identical with diphtheria in man.

Treatment. No external treatment is of very much service. Some recommend brushing off the membrane and touching the part with nitrate of silver, but we have tried this in several dozen cases with no perceptible results and a very tedious recovery at the best in young pheasants. I would advise not to brush off the membrane, but to leave it to come off of itself. Burn any pieces of membrane that come off. The only treatment is by internal methods through the blood, by hypodermic injections of diphtheria antitoxic serum (Mulford's). This is the only treatment that is of any service.

This serum is made by growing the germ of diphtheria in beef-tea and then filtering out the germs, and using the filtrate which contains only the toxins; then injecting this in small quantities, at first, into a horse, then gradually increasing the doses until the horse can stand enormous doses. Then the horse is bled, and the clear serum that collects at the top of the coagulated blood is injected into the animal suffering with diphtheria or roup. If the serum is used early enough the animal will recover.

This antitoxin treatment we have carried out since the serum first came into use, and with excellent results. Antitoxin is non-poisonous, and too much given is better than too little. I give 150 to 225 units for a bird of about four to five pounds, a ten-pound bird about 250 units. This may be too large; if disease is taken in time, 50 to 100 units is sufficient. Generally one injection is all that is required. If necessary, 100 units may be given in two

days afterward, but this is seldom needed. Since January 1st I have given about 150 injections, and since using the serum I have not lost one bird from roup, every bird recovering, though some would have a slight touch of paralysis for a time. The longer the bird is left without treatment the more chance there is of the bird dying, or paralysis is more likely to follow. The bird will recover if the serum is used. Two weeks ago I gave two birds an injection; one had a temperature of 108° , the other 107° ; in three days after the injection one of them, the cock (107°), was crowing, and they both made a good recovery; the owner thought they were going to die and intended to kill them the same day that I got them; he was afraid they would infect his other birds. The serum that I have been using is that put up by the H. K. Mulford Company, of Philadelphia, called diphtheria antitoxic serum.

The method of injecting the serum is simple; any hypodermic syringe will do, but I prefer the syringe that the Mulford Company sells, because there is very little chance of it getting out of order, and also on account of the small piece of rubber-tubing that connects the needle with the barrel, so that if the bird wiggles around the needle will not be broken. When using an ordinary syringe give 10 to 17 minims of the serum if the serum contain 200 units per cubic cent.

Mode of Injecting. 1. Boil the syringe for three minutes in water before using it, and do not touch the needle afterward either with the hands or anything else, as it would be then infected and must be boiled again, or it may produce an abscess, something that has not happened to me in a single case.

2. Fill the syringe to the desired amount with the antitoxin serum (too much is better than too little), then see that all the air is out of the needle by elevating the point of the needle and pressing home the plunger till the serum escapes from the point.

3. Select any part where the tissues or skin are loose, under the wing is the best, or on the side between the ribs and the hip. Pinch up the skin between the fingers and introduce the needle well under the skin to nearly its full extent. It is not necessary to go into the muscle, the serum will be absorbed fast enough from the subcutaneous tissue. Then introduce the serum slowly by pushing home the plunger. It is not necessary to wash the part where the injection is made with an antiseptic solution before or after the injection, but withdraw the needle rapidly. After using the syringe, wash it and the needle out with water before putting them away, as the serum will clog up the needle when it is boiled again.

The reason that I write this article at this time is that this and next month will be the hatching months, and roup will play sad havoc with some flocks unless the poultry-breeder is prepared for it in time. Any medical man will, I am sure, give the first injection, and he will be able to procure the serum from any druggist.

Before closing, I have to thank Dr. J. S. Niven, President of the Canadian Kennel Club, for chickens and pheasants supplied for the first experiments. The doctor is using the serum when needed among his flocks with good results, and will answer any inquiry made as to the serum-treatment. (Inclose postage.)

Mr. McNeil, the well-known poultry-breeder, has been using the serum with good results.

P. S.—Since writing the preceding paragraphs I visited, with Dr. Niven, a poultry-yard where the owner had only two birds left out of a flock of fifteen, and five out of another flock of eighteen. He thought that the birds had died from cold, but on picking up one of the remaining sick birds the described membrane was present under and along the sides of the tongue and on the roof of the mouth. We injected the remaining birds.

The Bureau of Animal Industry will be prepared to distribute the hog-cholera serum as soon as there is announced the usual summer and fall outbreaks in the States where the disease has been prevalent for many years.

Secretary Wilson believes the great facilities and wide range of work of the Department of Agriculture could be used for post-graduate studies and work of all young men graduates of agricultural colleges, and that the department could thus have a large number of available men in special training for positions in this department, where special work is fitting men constantly, who are taken by institutions of learning for instructors. It is thought the President favors the plan, and, as it is said no money will be required, the plan is considered feasible. Would it not have been a remarkable source of saving and economy had preparation and proper recognition through an army veterinary corps been available in the purchase of the more than two million dollars' worth of horses and mules during the past three months? The unnecessary losses by disease and death would have saved enough to maintain this service for the next ten years.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

DETERMINATION OF INCIPIENT TUBERCULOSIS WITH THE AID OF ROENTGEN RAYS. Among the many attempts which have been made to utilize the Roentgen rays in medicine, probably those are the most important which Kelsch and Boisson, of Lyons, have lately described before the Paris Academy of Medicine. It is an attempt to determine the presence of tubercles in the early stage of the disease. These physicians have for months been investigating the chests of young people with the radioscope. In their investigations the patient is always examined from the back side of the trunk, because a clearer view can be obtained here than from the front.

The physicians describe the view as very striking which the thoracic cavity makes upon the cyanide of potassium screen; everything lives and moves upon the same. In a healthy man the lungs are transparent from top to bottom; expiration is visible in the rising and sinking of the ribs, the beating of the heart is easily recognized, as well as the bending of the aorta and the movement of the diaphragm, which on expiration rises to the sixth rib, and on inspiration sinks to the eighth or ninth—i. e., at every breath it moves eight to ten centimetres, and resembles a mighty pump in its action.

After the physicians, by continued observation, had familiarized themselves with this image of the thoracic cavity, they endeavored to discover in it the signs of tuberculous disease. The investigation covered 124 persons who, for various reasons, had been admitted to the hospital, but in whom no signs of tuberculous disease of the lungs could be discovered by the ordinary means. In fifty-one cases various deviations from the normal condition of the lungs were observable; a decline in the transparency of one or both apices of the lungs, a one-sided decrease in the movement of the diaphragm, abnormal condition of the air-bubbles on one or on both sides. Since the apices of the lungs, the ends of the windpipe, and the pleura form especially the centre of tuberculosis, the investigators concluded that the observations in regard to the changes in these organs were to be regarded as signs of an early

stage of tuberculosis which heretofore could not be detected. In five cases which were thus examined the presence of tuberculosis was confirmed by a postmortem examination.

With confidence in the reliability of such observations, the members of the academy present agreed that the early diagnosis of tuberculous diseases of the lungs was the most valuable service which the Roentgen rays had up till now performed for medicine. Reference was immediately made to the great importance which this method of investigation would have in the examination of recruits, since the germs of consumption often develop in military service under the continued hardships. Since tuberculous persons often have a very healthy appearance, up till now there has been no means of rejecting persons with lung-diseases before mustering them in. The editor would here rather leave the last question open in regard to the possibility of determining tuberculous conditions in persons who arouse no suspicion of the disease on account of their healthy appearance.—*Thierärztliches Centralblatt*, March 1, 1898.

EUCAINE: A NEW LOCAL ANÆSTHETIC. Dentist Kiesel, of Berlin, writes to the *Drogisten Zeitung*, in regard to eucaine, that it has many advantages over cocaine, especially as the heart is in no way affected by it, the pulse remaining normal. Anæsthesia is more extended and lasts longer than in cocaine. Without injury to the health of the patient, 2 gr. of eucaine can be injected to 0.01 gr. of cocaine per dose. From a solution 1 : $6\frac{1}{2}$ —which would correspond to a 15 per cent. solution—twelve syringefuls could be injected before reaching the maximum dose. But usually half this quantity is sufficient to render the extraction of all the teeth painless. Solutions of 1 : $6\frac{1}{2}$, made with sterilized water, remain clear in ordinary temperatures, and never become flaky without the addition of carbol or salicyl, as cocaine does. We may then conclude that the ease of application, the certainty of the result, and, most of all, the great advantage over other local anæsthetics, that we have no unpleasant after-effects, will soon make eucaine a very popular anæsthetic.—*Idem*.

OPHTHALMOSCOPIC COURSE FOR ARMY VETERINARIANS. According to the regulations of the Austrian Ministry of War, two ophthalmoscopic courses, one at the Imperial Military Veterinary Institute and the other at the Veterinary High School, are given this year for the benefit of army veterinarians. These courses last about three weeks and are given between the 1st and 21st of May

and the 1st and 21st of June. The hearers were some twenty army veterinarians connected with the cavalry, and ten took part in each course. The War Ministry has provided the necessary instruments of investigation, consisting of an ophthalmoscope and a Priestley-Smith lamp for the veterinarian of each regiment. In order to provide sufficient material for practice the War Ministry has given these veterinarians access to the various clinics and allowed them to examine any number of the horses belonging to the Vienna cavalry and field artillery. These regulations have been gladly received in veterinary circles as a means of developing along special lines.—*Idem.*

SELECTIONS.

APHTHÆ, OR VESICULAR STOMATITIS OF THE HORSE.

By D. HUTCHEON,
COLONIAL VETERINARY SURGEON.

I observe that this disease is reported to have reappeared in the Transkeian Territories and some eastern districts.

Nature of the Disease. This is an eruptive febrile affection of the horse, characterized by the appearance of vesicles on the tongue, inside of the lips and cheeks, and frequently on the outside around the muzzle and nostrils. These vesicles—aphthæ—are irregular both in size and shape; but they are usually circular, of a yellowish color, and slightly raised above the surface of the mucous membrane. These vesicles burst and form ulcerous-looking sores, which often run together, leaving the tongue and lining of the lips and cheeks quite raw and very painful, rendering the animal unable to feed except with great difficulty. This last condition is most frequently observed in aged or debilitated horses. In a healthy, well-nourished animal the disease is generally mild, and invariably yields to simple treatment.

This disease is communicable by inoculation, but it does not appear to spread rapidly by infection. For instance, a healthy horse with a clean and uninjured mouth may eat out of the same manger with a horse which is suffering from the disease, and remain free from any appearance of it. But if there are any sores or abrasions about the horse's mouth, produced either by the bit or from feeding on thorny bushes, such a horse is very liable to become affected.

When a human being becomes inoculated through having cuts or abrasions of the skin or hands, very intractable sores are sometimes produced.

The disease appeared in the colony about the beginning of March, 1884, and was first reported to me from King Williamstown and Peddie districts. I was unable to find out where it originated. Previously to that it must have been very rarely met with, as many old and experienced farmers and horseowners informed me that they had not seen it before. Many were of the opinion that the disease was introduced by the horse eating prickly pears and thorny bushes, the ordinary food being very scarce at that time on account of a prolonged drought. But I saw it among horses in localities where there were no prickly pears on the veld, and also among stable-fed horses. It certainly prevailed most, and was most severe and intractable, amongst poor and debilitated horses, whether the poverty was induced by insufficient food or hard work.

Disorders of the digestive organs are recognized as a cause of this complaint, both by human and veterinary pathologists. It is quite possible, therefore, that the disease arose, in the first instance, from some peculiar local conditions, associated with the food or water, acting on an enfeebled constitution, but there can be little doubt that it assumed a contagious character of the nature above described.

The disease prevailed most along certain post-cart routes and among the horses belonging to the Cape police. When it entered a stable of post-cart horses it generally affected the majority of them. On the other hand, I know of numerous instances in private stables where one horse only was affected; although no efforts were made to isolate the sick one, or prevent him from eating and drinking out of the same vessels with the others, it disappeared very much as it came, without any very apparent reason. Since that time, however, frequent individual outbreaks of this disease have been reported; one of these occurred in the Swellendam district during the year 1895.

Treatment. This resolves itself into constitutional and local remedies.

First, with respect to constitutional treatment. If the affected animal is otherwise in good condition, give him a pint of raw linseed-oil, followed by a teaspoonful each of saltpetre and flowers-of-sulphur, daily, while the complaint lasts. If, on the other hand, the horse is poor and debilitated, add a teaspoonful of sulphate of

iron to the above mixture, and supply him with soft, succulent, nourishing food, such as bran-mashes, green food, carrots, etc.

Second, local treatment. This consists in cleaning out the mouth three times a day with antiseptic astringent lotions, such as strong solutions of alum, bluestone, or boric acid, an ounce of either dissolved in a bottle of water. When the mouth is very sore, raw, and smells very badly, add half an ounce of carbolic acid, or an ounce of Jeyes' fluid to any of these mixtures. There are many other lotions which may be used, such as solutions of chlorate of potash, salicylic acid, and many owners use little else but common salt and sulphur placed in the mouth.

The simplest and easiest method of dressing a horse's mouth is to elevate the animal's head, then quietly introduce the neck of the bottle containing the lotion into the side of the mouth, and allow the mixture to run out of the bottle until the horse's mouth is pretty full, then gradually lower his head, when he will rinse out his mouth by the action of the tongue as the fluid trickles out. Do not attempt to throw or dash anything into a horse's mouth, or it will cause him to resist any subsequent dressing.—*Cape of Good Hope Agricultural Journal*, May, 1898.

LARD AS AN ANTIDOTE FOR STRYCHNINE-POISONING.

BY W. D. TURNER, M.D.

I WISH to give the results of a series of experiments made with the sulphate of strychnine upon the lower animals, and to suggest an antidote for the same.

The way my attention was first called to this treatment was as follows: A very valuable dog accidentally ate some strychnine placed upon a piece of meat for other purposes, and when found was in the agony of death, it seemed. Where he had been lying on the ground he had (from convulsions) scratched a hole larger than he was; he must have eaten the strychnine several hours ahead of the time he was found. He was so very near dead that I thought it useless to attempt to do anything; but one of the employés on my place, to be doing something, gave him lard—I guess about four ounces, as near as I can judge from what he told me. In less than five hours the dog was up running about, and the next day seemed as well as ever. Then I commenced my investigations or experiments.

I took a full-grown dog and gave him three grains of the sulphate of strychnine and waited till the spasms were well advanced,

which was in about twenty-eight minutes; waited forty-eight minutes and gave six ounces of lard. In two and one-half hours he was up, though for two days was very stiff and sore. Three days thereafter I gave the same dog four grains of the sulphate of strychnine, but the convulsions were not well advanced until about thirty-five minutes. I waited an hour before I gave the lard, six ounces, and had to repeat it in an hour. In thirty-five minutes from the second dose he was up. This is the only instance in which I used it on the same animal the second time.

This, the last dog experimented upon, was given four grains of the sulphate of strychnine. I waited until his legs were fixed and stiff, and had to force his jaws open to pour the lard down him; I had to wrap him in warm cloths, and keep warm water applied to the surface to retain normal temperature. I gave him eighteen ounces of lard and kept him warm, and in twelve hours he was up, though he would not eat till the next day.

I next gave a hen one-quarter grain of strychnine sulphate, but the only effect it had was to make her drunk. Gave one teaspoonful of melted lard, and the next morning she was going about, though not eating. I had about the same experience with two other hens.

I next tried one-fourth grain on a crow, and in twenty-four hours it flew away, after using the lard.

I next tried it on four eight-months-old pigs; I lost the first two, but gave twelve ounces to the last two, instead of six ounces, and they both got well. I only gave two grains of strychnine sulphate to each hog.

I then gave an eleven-months-old calf six grains of strychnine sulphate, and with fifteen ounces of lard had good results in six hours, though I did not let the convulsions become very marked before I gave the lard, as it was a very valuable calf, and I could not well afford to lose it; but with the next calf I gave a good test.

The next was a six-months-old calf, to which I gave five grains of strychnine sulphate. In forty minutes the convulsions were well-marked; I then gave fifteen ounces of lard, but in an hour had to give seven ounces more. Made a good recovery.

I have tried to be very brief, and have sacrificed many points and much grammar for the sake of brevity; but I did wish to let these little experiments be known, and let them be carried out further, if deemed worthy, for it does seem to me that in lard we have a safe, sure, and simple antidote for strychnine-poisoning.—*Virginia Medical Semi-Monthly*.

THERAPEUTIC NOTES.

CONDUCTED BY W. J. MARTIN, V.S.,
KANKAKEE, ILL.

THE COMPARATIVE VALUE OF ANTISEPTICS. A. Gawalowski has brought together in tabulated form a statement of the comparative value of a number of antiseptics, ranking them according to their efficiency as disinfectants, antiseptics, and deodorizers. In this table corrosive sublimate is taken as a standard for comparison, with a value of 100.

Substance.	Disinfectant.	Antiseptic.	Deodorizer.
Corrosive sublimate	100	100	...
Carbolic acid (100 per cent.)	50	50	40
Sulphurous acid (gas)	50	50	50
Thymol (solid)	50	50	40
Creosote (100 per cent.)	50	50	40
Antimony (Bayer)	50	50	40
Iron vitriol (crystal)	40	50	30
Ferrous zinc sulphate (crystal)	40	50	40
Iron oxide	40	10	15
Ferrous zinc magnesium sulphate (crystal)	40	30	30
Copper zinc sulphate (crystal)	35	40	40
Ferrous zinc cupric sulph. (cryst.)	35	40	40
Zinc phenolate (dry)	30	40	45
Sulphites (10-40 per cent.)	15-25	15-25	15-25
Permanganates (solid)	25	10	50
Salicylates (solid)	25	25	40
Creolin	25	25	40
Lysol	25	25	...
Chlorine (gas)	15	...	50
Ferrous zinc calcium sulph. (cryst.)	15	30	40
Ferrous salts (40-50 per cent. sol.)	10	10	5
Zinc salts (crystal)	10	...	40
Calcium chloride	5	...	15

—*Pharm. Post and Phar. Review.*

INTERNAL ADMINISTRATION OF CREOSOTE. Creosote is best administered to small animals in a capsule containing equal parts of olive oil and balsam-of-tolu. This mixture does not irritate the digestive tracts, and exercises also a direct therapeutical effect upon the bronchial mucous membranes. For administration to horses and cattle, creosote should be mixed with milk, with which it forms a perfect emulsion.

TO DESTROY WORMS IN POWDERED VEGETABLE DRUGS. Place the infected drug in an air-tight bottle and place therein a small sponge or piece of felt saturated with pure chloroform. The chloroform quickly destroys all insect-life, and can be removed from the drug by simply leaving the stopper of the bottle out for a short time after removing the sponge or felt.

HEALING SALVES.

No. 1.	R.—Lanolin	125 parts.
	Vaselin	350 "
	Glycerin	350 "
	Zinc oxide	125 "
	Carbolic acid	10 "

Mix the lanolin and vaselin, add the glycerin and work together, then add the zinc oxide and carbolic acid, and work until thoroughly incorporated.

No. 2.	R.—Lanolin	4 parts.
	Vaselin	350 "
	Boro glyceride, 50 per cent.	4 "
	Glycerin	8 "

Mix as above.

No. 3.	R.—Lanolin	125 parts.
	Vaselin	350 "
	Glycerin	350 "
	Zinc oxide	125 "
	Tannin	8 "

Mix as above.

AN APPLICATION FOR INSECT-BITES AND STINGS.

No. 1.	R.—Olive oil	4 ounces.
	Aqua ammonia	4 "
	Oil turpentine	2 drachms.
	Tinct. opium	2 "

Mix.

No. 2.	R.—Carbolic acid	4 drachms.
	Glycerin	2 ounces.
	Water	4 drachms.

Mix by aid of a gentle heat.

—*Bull. Pharmacy.*

WHAT IS MEDICINE? We have been frequently at a loss to decide what constitutes a drug or medicine, but the Pharmaceutical Congress at Brussels has settled the question for us, and declares that "By medicine we understand any substances to which is attributed the property of being able to restore men and animals

to a state of health." This is sufficiently comprehensive and very carefully worded. Now, what are we to call substances to which is attributed the faculty of being able to endanger the health of men and animals? And as we are told that this is an age of preventive medicine, what are we to call those agents which are employed for the purpose of preventing injury to the health of men and animals?—*Bull. Pharmacy.*

BENZOATED LARD can be economically prepared by melting in a water-bath one pound of fresh lard, and incorporating with it five drachms of finely-powdered gum-benzoin. A more elegant preparation may be had by substituting benzoic acid for the benzoin.

OLIVE OIL is an excellent dressing for bruises, swellings, and collar-excoriations so often met with in horses.

TO REMOVE WARTS. A concentrated solution of bichromate of potassium applied once a day will effectually remove these troublesome growths so often met with in veterinary practice.

AN EXPLOSIVE COMPOUND. A combination of iodine and oil of turpentine is incompatible, and is liable to form a dangerous explosive mixture.

The proceedings of the National Livestock Association of the United States is added to in value by contributions from Veterinarians Gresswell, of Colorado; Clement, of Baltimore, Md.; Peters, of Nebraska; Norgard, of Washington; and Knowles, of Helena, and their contributions are further embellished with photogravure reproductions of the authors.

The total expenditure on rinderpest in Natal, South Africa, up to March 31, 1898, was £187,023 12s. 11d. It is estimated that of this a sum of £25,000 will be repaid into the treasury, leaving the actual expenditure at approximately £162,000.

Prof. Henry, of Wisconsin, says the weight of evidence is against feeding cooked food to hogs; they thrive best on uncooked food.

The oyster is one of the strongest of creatures, and the force required to open it is more than 1300 times its own weight.

Neither camels nor elephants can jump.

REPORTS OF CASES.¹

MULTIPLE SCLEROSIS IN A DOG.

BY WILFRED LELLMAN, D.V.M.,

PROFESSOR OF MATERIA MEDICA AND THERAPEUTICS, AND PARASITES AND PARASITIC DISEASES, NEW YORK COLLEGE OF VETERINARY SURGEONS, NEW YORK CITY.

A VERY interesting case of paralysis in a dog was observed by me last year. When I discuss this case it is done with some reluctance, as it was impossible for me to get the animal for an autopsy in order to prove that my diagnosis was correct; nevertheless, there is no doubt in my mind.

In September of last year I was called to examine a dog, which, according to the owner's history, had been paralyzed gradually during the past six months. When securing the history of the case as thoroughly as possible, I found out the following facts: The first symptoms which the owner of the animal noticed were an intense twitching of the muscles of the extremities when the animal got up to walk or when it became excited; during rest these symptoms would cease entirely. By and by, the owner said, she noticed the appearance of weakness in the hind legs, staggering gait, till finally the animal became entirely paralyzed in its hind legs; the forelegs also seemed to become weaker and not to be able to perform their normal function; the right front extremity more especially. The dog, which was trained well and used to know a good many tricks, seemed to have forgotten all but one of them entirely. The owner told me that, according to her opinion, the dog had very poor eyesight. The appetite had been fair. When asked whether any irregularities in passing the feces and urine had been noticed, the owner told me that she had never noticed any.

A thorough examination was made, the results being as follows: Male pug dog, about six years old; in abnormal fat condition, the hair being of dull lustre, the visible mucous membranes appear to be anæmic; pulse is small, irregular, beating about 100 times a minute. At the two brachial arteries the pulse appears not synchronous. Temperature per rectum is 102° F. The heart-shock is weak—can hardly be felt on the left side of the thorax. Percussion of the heart-region shows an increased zone of dulness. While auscultating the heart I find the first sound normal, while the second one can hardly be distinguished; it appears to be combined with a by-sound almost synchronous with the diastole of

¹ Read before the Veterinary Medical Association of New York County, June, 1898.

the heart. This abnormal by-sound is of a somewhat buzzing character. According to my examination of the heart I diagnosed insufficiency of the semilunar valves of the aorta, and also a possible aneurism (dilatation). There is, also, most probably a dilatation of the left ventricle. Percussion of the thoracic walls shows nothing abnormal apart from the increased dulness of the heart-region. Auscultation of the lungs reveals dry bronchial râles. Examination of the digestive apparatus reveals nothing very important, except a catarrh of the intestinal tract. Disturbances in the function of the rectum are not present. Examination of the uro-genital organs proves slight albuminuria, and quite an enlargement of the prostatic gland. The psyche of the animal is not free; it appears distinctly depressed, somewhat apathetic. A thorough examination of the eyes shows considerable dilatation of the pupils, partial atrophy of the optic nerves, some small calcifications within the lens; these, however, were not sufficient to cause any substantial disturbance of the eyesight. The hind extremities are almost perfectly paralyzed. When trying to move, the dog drags the extremities; the animal is unable to make any coördinate movements with the same. The fore extremities show commencing paretic symptoms, the right one more so. However, there is not substantial atrophy of any muscles of the extremities and the trunk. Almost puzzling is the considerable atrophy of both temporal muscles. Every time the animal tries to move a considerable tremor of the muscles of the extremities sets in; during rest, however, it disappears altogether. While testing the sensibility of the nerves I can hardly detect anything abnormal. On the other hand, the reflex of the tendons and periosteum appears distinctly increased. The hind extremities show considerably increased patellar reflex, and also intense clonus of the foot (reflex of the Achillean tendon). The muscles of the posterior extremities are in a kind of tonic state. The gait of the hind extremities is paretic-spastic. The reflex of the cutis appears to be normal. Trophic lesions are not present. Disturbances in the function of the rectum and bladder are also absent. By request, some milk was given to the dog. I now notice that there were beginning disturbances in swallowing. The lower lip appears somewhat flabby and is hanging down. The voice of the dog is also changed. This was told me by the owner before. Those last-mentioned symptoms speak clearly for pathological alterations of the medulla, while atrophy of the optic nerves is due to cerebral alterations. The paraplegia of the posterior extremities I consider

due to chronic alterations within the lateral and anterior tracts of the spinal cord.

It is easily understood that the clinical symptoms of multiple sclerosis of the brain and spinal cord can be very variable, according to the localization of those sclerotic alterations. In this case, according to the clinical symptoms, I localized the sclerotic alterations principally within the occipital lobes of the hemispheres, within the medulla oblongata, pons varolii, and within the spinal cord from the thoracic to the lumbar region. I base my diagnosis upon the following facts 1. Upon the slow progressive paralysis ; any neo-formations would have been of a quicker course, and would have revealed other clinical symptoms besides. 2. Upon the condition of the whole system of the dog ; upon the clinical examination of the heart, which proved to be alteration of the ascendent aorta, principally insufficiency, and most probably aneurism ; obesity of the heart. Those reasons are strengthened by the *modus vivendi* of the animal—that is, absolutely wrong diet and lack of exercise. It is easily understood that those disturbances within the circulation are apt to cause chronic alterations of the central nervous system, due to insufficient nutrition.

The sclerosis I consider due to alterations of the very fine bloodvessels of the central nervous system, perhaps due to arteriosclerosis or fatty degeneration of the muscular coat. Those arteriosclerotic alterations are very often followed by thromboses and embolism. As the prognosis was very bad, I advised the owner to destroy the dog, which was done. It was, however, impossible for me to obtain the dog for an autopsy, as the owner did not want to have him cut up.

TWIST, OR ROTATION OF THE COLON.

BY THOMAS V. SIMPSON, V.S.,
YORKTOWN, N. W. T., CANADA.

Subject. Gelding, three years old past, driver, weight about 900 pounds.

History. Was taken sick during the night, and on the following morning when first seen presented the following symptoms: Subacute abdominal pain ; would lie down a great deal ; passed a very small quantity of hard feces. Seemed very dull, and rubbed tail against side of stall. The pulse was very little quickened, and no abnormal rise of temperature. Rectal examination showed no impaction of colon.

Treatment. Gave one ounce of aloes and two drachms of powdered

ginger in solution, thrown back on the tongue with a syringe. In the afternoon grew worse, and no feces having been passed, I gave barium chloride, seven grains, intravenously, after which some hard feces were passed, assisted by the administration of rectal injections of warm water. At night he seemed to be getting worse, and as the bowels had not moved to any extent I gave ten grains more of barium chloride intravenously, with the result of securing the passage of only a very small quantity of fecal matter. At this time the pulse was quick and almost imperceptible, temperature 103° , pain acute and constant, would paw and lie down, and assume the dorsal position when down. Seeing it was impossible to get a cathartic to operate, I gave chloral hydrate, which eased the pain and kept the patient quiet. Death followed at 2 P.M. the succeeding day. Before succumbing the pains became very acute; animal would roll and assume dorsal position; pulse again imperceptible at jaw; abdomen tucked; would quiver and sweat.

Postmortem. Examination of abdominal organs revealed a volvulus, the large colon being twisted at the sternal and diaphragmatic flexures. Very little food was found in the alimentary canal. This case answers to the condition above named as described in Möller's *Surgery*.

OSTEOMYELITIS GENERALIS.

BY A. B. CAMPBELL, V.S. (O. V. College),
BERLIN, ONTARIO.

WAS called to see this horse in consultation with Dr. Orr, of Baden, who was undecided as to the nature of the case.

Subject: Driver, gelding, four years old.

History: For some months previous the animal showed great fatigue at moderate work, and in the stable assumed the recumbent position the greater part of the time. These symptoms continued to become more marked, and later, when standing, the back became arched, with gradual loss of condition. The horse had been treated by a local non-graduate veterinarian for kidney-trouble and inflammation of the spine.

Examination failed to reveal anything of importance in connection with any of the vital organs. Rectal examination failed to reveal any abnormal lesions, and a diagnosis by exclusion was aimed at, but the only conclusions arrived at on our first examination were the location of the trouble posteriorly, the right extremity affected more than the left, and only tonic treatment of a general character prescribed.

Progress. Some weeks later we found all the symptoms more marked, greater emaciation, lassitude, unable to retain the weight of the hind limbs but for a short time. The hind feet extended forward under the body, like a horse with laminitis, back more arched, and pulse and temperature very little disturbed.

There was one symptom which I could not understand until after the postmortem. The floor of the stall being cobblestone, there was one place where he would always search and feel for and would stand with the toes elevated on the edge of a stone, with the heels low in a hole. In this position the owner told us he seemed to get the most relief. From this time he was turned out to grass, with the request to the owner that he inform us if there was no improvement or the animal died. He continued to lose condition until he became unable to stand sufficient time to graze and was nothing but skin and bone, when we were given permission to destroy him.

Autopsy. All the internal organs were free from organic changes. The muscles of the femoral region were of a very pale whitish appearance, especially those attached to the femur. On sawing through the femur we noted the medullary portion had the appearance of clotted blood the entire length of the bone, and in the cancellated structure of the superior portion several points of pus-formation were apparent. The synovia of the pelvic and femoro-tibial articulations were slightly discolored with degenerative changes in the cartilage and coagulation of the synovial fluid, in part free or attached to the articular surfaces. The altered condition of the medullary portion of the bones was more marked and advanced in the right limb, and was noticeable in the bones of the fore limbs.

We pronounced the case osteomyelitis, but were unable to give any cause for it. No evidence of any traumatic origin or history of any injury. The peculiar position assumed by the animal while standing indicated that the weight of the parts was in this way supported more by the muscles than by the bony columns. This case corresponds in my mind very closely to what is termed in human medicine "hip-joint disease," and would in time in this case probably have terminated in a fistulous abscess.

A barking dog, a runaway, a lawsuit, a verdict for \$5000 damages, the sale of Ex-President Hayes' home by the sheriff for the damages and costs amounting in all to \$6095, are now a matter of record.

IMPACTION OF RECTUM.

BY H. E. JAMES, V.S.,

GOVERNMENT VETERINARY INSPECTOR, OTTAWA, CANADA.

Subject : A four-year-old Clydesdale mare, weighing about 1600 pounds.

History : Seen first in May, 1897. Mare had been at pasture, and had been noticed very dull for several days, but no attention was paid to her until the day I was called, when colicky symptoms developed. Pasture was good and water abundant.

Symptoms : Pain very severe, the mare rolling violently and sweating freely. Examination revealed rectum impacted and enormously distended with feces. It required fifteen minutes' manual effort to remove sufficient to allow entrance of nozzle of syringe, after which an astounding amount of fecal matter was eliminated. A hypodermic injection of morphia was given, followed by an eight-drachm ball of aloes. Soft feed advised and regular exercise.

Two months later I was summoned again to see her, finding the same condition recurring, the impaction not so marked. At this time she was being worked and was fed on bran and oats, with hay and a bran-mash every Saturday night. The same treatment was applied, and, after relieving the acute symptoms, nux vomica was administered twice daily for several weeks and a pint of raw linseed-oil once a week.

Since the second attack I have been summoned four times to see her, finding her condition but slightly changed from the first attack. I have changed her feed, applied counter-irritation, given salines, with no better effect. She is now working in a lumber-team, and on an average the enema syringe is called into requisition every fortnight. Would be glad to hear of any similar case, the treatment pursued, and results obtained.

ABNORMAL POSITION OF THE KIDNEY.

BY S. J. J. HARGER, V.M.D.,

VETERINARY DEPARTMENT UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA.

The subject, an aged gelding, was destroyed for dissecting purposes. The right kidney was normal in shape, but situated on the lateral wall of the pelvis opposite to the neck of the ileum. Its artery was a branch of the external iliac artery, and its vein opened into the pelvic trunk. The ureter, very short, left the

posterior extremity of the organ ; its termination into the bladder was normal. By rectal examination this organ could have been mistaken for a pathological growth. The left kidney was normal.

HÆMATURIA FROM UMBILICAL VEIN; CONSTIPATION.

BY O. W. GRAHAM, V.S. (O. V. College),
PORT PERRY, ONTARIO.

Subject : A Clyde colt, eight days old.

History : Large and well-nourished, from a dam in good condition ; had taken little nourishment for several days.

Symptoms : Animal almost continually on the move, but no disposition to lie down ; uneasy ; movements stiff ; frequent attempts to void urine, passing about four ounces of blood each time, after much straining ; mucous membrane highly injected ; mouth hot and dry ; grating of teeth ; tongue coated ; hurried, panting respiration ; small, quick pulse ; action of bowels completely arrested ; abdomen tender to pressure ; abdominal ring enlarged, tense, and painful to manipulation ; expression of face dejected.

Diagnosis : Hæmaturia from umbilical vein, with constipation.

Prognosis : Unfavorable.

Treatment : Placed the colt on his back and manipulated the umbilical swelling until a gurgling sound was heard. The colt, on regaining his feet, passed immediately a pint of blood, confirming my conclusion as to the origin of the blood. Placing the colt on the right side, I opened the urachus, which was well closed at the lower end for an animal of that age, but impervious internally. He now bled quite freely. Injected an antiseptic solution of pyoktanin, and inserted a pledget of absorbent cotton soaked in the same. Placed the pledget well up the urachus, stopping hemorrhage completely. Gave as a laxative eight ounces linseed-oil, and every three hours for two days small doses of a mixture of zinc, aromatic spirits of ammonia, belladonna, and ginger, and enemas of warm water. Externally, continual application for twenty-four hours of a woollen blanket wrung out of hot water. On visiting the animal the following day found him urinating freely, without any blood, no movement of the bowels, and not taking any nourishment. The colt continued to remain standing, but was not so uneasy. On removal of the pledget of cotton from the urachus found it closed as before ; repacked the opening. Gave four ounces of fluid-extract of cascara sagrada, and continued the stimulant mixture, enemas, and hot cloths externally. Twenty-four

hours later a marked improvement was noticeable, the colt taking some nourishment and resting easily, but no action of the bowels. Discontinued the external treatment of hot cloths, and gave four ounces each of castor-oil and linseed-oil, which fifteen hours later was followed by a free movement of the bowels. Removal of the pledget was not followed by any hemorrhage, but a slight leakage of urine and some pus. From this on the colt continued to improve, making a complete recovery. This is the first case of this kind I have noted in fifteen years, though practising in a large breeding-district.

AN UNEXPECTED RECOVERY.

BY JAMES AND PERLEY, Veterinary Surgeons,
OTTAWA, CANADA.

ON July 5, 1898, at 10 A.M., we were summoned to attend a case of colic.

Subject: A seven-year-old draught-horse, weighing about 1400 pounds.

History: Animal was taken sick about half an hour previous to seeing him, and while at work. When first seen he presented all the symptoms of spasmodic colic, and was treated for such without any apparent relief.

About one o'clock tympanites was quite marked, and we were almost on the point of using a trocar, when the distention rapidly disappeared. At this stage the animal began sitting on his haunches and balancing himself on his back. There had been no movement of the bowels up to this time; pulse weak and about 80 beats per minute; temperature normal.

We now diagnosed case as one of volvulus or intussusception, with prognosis very unfavorable, and administered two grains each of eserine and pilocarpine hypodermically, and in ten minutes the animal began to strain, but passed nothing. In twenty minutes more animal was very uneasy, and there occurred a regurgitation of a clear liquid amounting to about a pint.

During the next hour about three-quarts of ingesta were vomited and animal became very weak; temperature rose to 103° F., and pulse became almost obliterated. Injections were used without avail, and a weak mustard-plaster applied to abdomen. Catheter was passed and a considerable quantity of normal urine drawn off.

At 6 P. M. the animal appeared better, and from that time improved rapidly. He was given light diet the following day, and is at his usual work to-day as well as ever.

CLINIC NOTES FROM McKILLIP VETERINARY COLLEGE.

Reported by DR. L. A. MERRILLAT.

TRACHEAL STENOSIS. The possibility of successfully replacing a considerable portion of a horse's trachea with an artificial tube was demonstrated at a surgical clinic January 7, 1898.

Following two operations of tracheotomy, the patient's trachea collapsed so as to lessen its lumen to a dangerous extent. The subsequent operation showed that seven rings had been cut. The integument and muscles were dissected from the trachea and all the cut rings removed, except a small part of their dorsal portion. An aluminum tube, 17.5 centimetres (7 inches) in length and of equal calibre to that of the normal trachea, was sutured with silver wire to the rings at each extremity of the wound. The muscles and integument were then carefully brought together over it. Union took place in due time, and the animal, six months later, shows little or no inconvenience and works daily.

This case is of special importance, as tracheal stenosis following even simple tracheotomy is quite common, and as, in most cases, only two or three rings are involved, the operation would ordinarily be attended with even less danger and inconvenience to the animal.

George Wilkes's bones have been unearthed after sixteen years' burial, and presented to the Museum of the Kentucky State College at Lexington, a fitting place for the skeleton of so prepotent a sire.

German canaries excel all other canaries as singers. A canary of Germany has been known to continue a single trill for a minute and a quarter, with twenty changes of note in it.

Cows that are wild and unruly may be led without difficulty by blindfolding them.

Blue-ribbon horses in certain classes will be excluded from competition at the next exhibition of the National Horse-show, Madison Square Garden, New York.

Another shoe with removable calks for asphalt pavements—the calk on the wearing surface to be circular or tubular in form.

The average bullock weighs 800 pounds.

AMONG THE PROFESSION IN CANADA.

CANADA VETERINARY ASSOCIATIONS.

Ontario Veterinary Medical Association.—Secretary, C. H. Sweetapple, 46 Temperance Street, Toronto, Ontario. Meetings, March and September.

Manitoba Veterinary Association.—Secretary, W. A. Dunbar, Winnipeg, Manitoba. Meetings annually, February.

Western Ontario Veterinary Medical Association.—President, William Gibbs, St. Mary's, Ontario.

Ontario Veterinary Medical College Society.—Secretary, C. W. Fisher, Cabot, Vt. Meetings bi-weekly during college term.

Montreal Veterinary Medical Association.—Secretary, W. B. Wallis, 6 Union Avenue, Montreal. Meetings monthly during college term of McGill Veterinary Department.

VETERINARY DEPARTMENT OF MCGILL UNIVERSITY.

The Montreal Veterinary College was established in 1866, and the session of 1898–1899 will convene its thirty-third session, becoming affiliated with McGill University with the session of 1889–1890.

This college instituted a three-years' course of six months each as its curriculum in 1877, and has maintained these requirements ever since. It can be said that this college was the pioneer in higher veterinary education. Its entrance examination is rigidly enforced and continues to be advanced higher and higher. Rudiments of Latin as a necessary part of matriculation will be shortly required. This accounts largely for the uniform high standing of the graduates of this school, many of whom have been selected as teachers in other veterinary colleges, notably Veterinary Department of University of Pennsylvania, American Veterinary College, Chicago Veterinary College, California Veterinary College, New York State Veterinary College, United States College of Veterinary Surgeons, National Veterinary College, Amherst Agricultural College, and French Veterinary School of Montreal. By virtue of a money grant, thirteen free scholarships are annually awarded to the Province of Quebec. Greatly increased laboratory facilities and advantages were obtained by affiliation. The examinations held regularly determine the advancement of the students. The school has graduated two hundred and fifty-two veterinarians.

AMONG MONTREAL GRADUATES.

Dr. Alexander Glass, of the class of 1882, has become wedded to a naphtha launch, and the streams adjacent to Philadelphia find daily the bow of the "Corona" plying into all their nooks and coves.

Dr. M. C. Baker, of the class of 1879, has found no spot so attractive as the city of his alma mater, and no place so good to be as within the old college walls.

Dr. A. W. Clement, of the class of 1883, was known in college as the wizard of the microscope, and for many years after followed closely its teachings in national and State work.

Dr. N. P. Hinkley, of the class of 1880, was as popular as a student as he was an open debater and defender of his convictions in college days at Montreal.

Dr. William Jakeman and the late Dr. J. M. Skally, of the class of 1880, were boon friends in their college days, and Jakeman was known as father of the boys.

It is said of Dr. Benjamin D. Pierce, of the class of 1881, that in those days America did not possess a trotting-bred horse whose pedigree and record were not at his tongue's end. He put many to sleep in his college days when the point of six removes from the sire and dam was reached.

Dr. C. B. Robinson, of the class of 1882, was known as among the most emphatic in expression, and clinched his arguments with strong words. He early demonstrated his faculties for a successful career in the profession.

Dr. A. H. Baker, of the class of 1876, won its medal, and thus pointed the way for a career in rearing another college, where to others might be imparted a portion of the knowledge obtained at Montreal.

Dr. Richard Price, of the class of 1883, or Dick, as the boys all called him, was full of prospects and a noted castle-builder, and lived to touch fame and fortune in the great Northwest in the better days of the profession.

Dr. W. L. Williams, of the class of 1879, was as steady a worker in college days as he has proven a roving veterinarian in the past six to eight years, claiming a residence in more divergent points of the compass than any of his classmates.

Dr. Paul Paquin, of the class of 1883, early demonstrated his fitness for a career of investigation, and has ridden his hobby ever since, winning fame and wooing fortune.

Dr. A. R. Rowat, of the class of 1887, found more congenial the climate of the Sandwich Islands, and now revels in the feeling of again being a connection of North America.

Dr. V. T. Daubigny, of the class of 1879, continued his successful studies after leaving college by connecting himself with the Veterinary Department (French School) of Laval University.

Dr. Frank H. Miller, of the class of 1887, early demonstrated a fondness for canine pathology, and follows now exclusively the bend of his mind in early years.

Dr. D. Lemay, of the class of 1879, was the pride of his classmates, and his early seeking of military associations the natural trend of all his early promises.

Dr. J. M. Parker, of the class of 1889, was a jolly good fellow at college, red-headed and hopeful at all times, and the "hole in the bottom of the sea" never ruffled his brain.

Dr. John Ryan, of the class of 1877, found the northern climate of Canada too slow, and only the rush and bustle of the "Windy City" of the West proved a fitting place for his labors.

Dr. Cecil French, of the class of 1894, won the medal for that year, and his fondness for the more domesticated animals found only its full sway in the "City of Magnificent Distances," where canine and feline pets abide in every household.

Dr. C. C. Lyford, of the class of 1879, was noted as a good fellow, and has ever maintained the kindest and warmest regard of every one among the profession whose friendship he formed.

Dr. James B. Paige, of the class of 1888, was a faithful plodder after knowledge, and this drift of mind has led him to the fields of instruction at home and abroad.

Dr. Joseph Plaskett, of the class of 1892, or "Joe," as he was wont to be called, was a Southern representative who maintained well the fair name and worth of a Southern gentleman.

Dr. J. Robertson, of the class of 1888, longed for a military career, and found his much-hoped-for experience in the present Hispano-American war, but recent advices announce him among the wounded.

Dr. L. E. Willyoung, of the class of 1890, was deservedly popular among his classmates, and the "Queen City of the Lakes" welcomed him to a popular place among her veterinarians.

Dr. Charles McEachran, of the class of 1884, was a true advocate of the value of a sporting turn of mind, and many happy hours following the hounds over hill and heather have been spent since his college days.

Drs. Benjamin D. Pierce, of Springfield, Thomas Blackwood, of Boston, and J. R. McLaughlin are a trio of the older graduates of Montreal in the " Bay State."

Drs. John M. Parker, of Haverhill, Mass.; Frank H. Miller, of New York, and A. W. Clement, of Baltimore, are examiners at the closing examinations at McGill. These three represent the United States on the Board, and are nominated by the Provincial Government for these duties.

Drs. J. A. Couture, of Quebec; A. McCormic, of Ormstown, and A. W. Harris, of Ottawa, represent the Canadian graduates on the Board of Examiners.

Prof. Wesley Mills, of the class of 1890, still lingers abroad on leave of absence, enjoying himself among the storehouses of knowledge in Germany. He will resume his teachings at McGill in October.

Dr. A. E. Moore, of the class of 1894, stands as representative fellow in comparative medicine and veterinary science in the corporation of McGill University.

MASSACHUSETTS ALUMNI ASSOCIATION OF MCGILL VETERINARY DEPARTMENT.

Officers: President, Dr. J. R. McLaughlin, of Newton; Secretary, Dr. John M. Parker, of Haverhill. This association was organized about four years ago, and has annually reelected the same officers. The annual reunion and banquet is held in February of each year, and informal meetings in June and November. The association has twice been the invited guest of the Massachusetts Veterinary Association on their June outing down the bay, which has added much to the pleasure of the organization.

A strong effort will be put forth to hold a grand reunion of the graduates of old Montreal, now the Veterinary Department of McGill, in February, 1899, at the old college buildings in Union Avenue, Montreal.

Montreal graduates are scattered from the Sandwich Islands, California, Maine, every province in Canada, and most of the States of the Union, but it is earnestly hoped that every class will have a number of representatives in February next.

ONTARIO VETERINARY COLLEGE.

This institution inaugurated its first course of lectures in 1862. Its first graduates in 1866 numbered three, while the total number, including the class of 1898, now reach 2275. The first building

erected for instruction in veterinary science exclusively was in 1869. This building was enlarged in 1876, when the facilities would accommodate some two hundred students. In 1885 the classes had risen to over three hundred, which necessitated increased accommodations, which were completed in 1889 and now can accommodate at least five hundred students. These latter buildings have added much to the value of instruction given by providing ample laboratory facilities and rooms for class teaching.

Much importance is attached to the requirement that students shall serve an apprenticeship with graduates between the first and second-year sessions. Students are graduated in March and December of each year, which makes provision in the curriculum for students to enter in December.

Prof. Andrew Smith has been the active head of this institution from its inception to the present day. He has held many official positions in the Province of Ontario and is active in the promotion of horse-breeding, dairy development, and livestock pursuits as associated with agriculture, and has given much time and thought in the encouragement of every diverse interest of livestock industry.

The probable adoption of a compulsory three-years' course at an early date gives much promise to the college in more thoroughly educating men for the veterinary profession, and no doubt will be followed by every two-years' college advancing to the three-years' limit. Its present facilities will afford it an exceptional opportunity of giving a thorough graded course, and, with the largest number of alumni in North America to aid it, will no doubt again in the near future see its classes greatly augmented in numbers and of higher preparatory education.

AMONG THE GRADUATES OF THE ONTARIO VETERINARY COLLEGE.

Dr. James A. Waugh, of the class of 1882, early sought the experiences of a military life as a veterinarian, but, tiring of the lack of official recognition, sought in the "Smoky City" the pleasures and profits of a civil practice.

Dr. John A. Bell, of the class of 1880, was an earnest seeker after sanitary science and police, and as naturally drifted into official work in the "Empire State."

Dr. Judson Black, of the class of 1894, was a strong advocate of the necessity of a proper knowledge of horseshoeing to make a well-equipped veterinarian.

Dr. F. A. Balser, of the class of 1885, has filled the rôle of State veterinarian for the "Hoosier State."

Dr. John P. Bond, of the class of 1873, early sought association with the work of the Bureau of Animal Industry.

Dr. W. G. Benner, of the class of 1890, finds much pleasure and enjoyment in the raising of German hares.

Dr. Tait S. Butler, of the class of 1885, is an ardent swine-raiser, and prophesies the early transition of the Southern razor-back to a full-fledged "Chief, I know" of the West.

Dr. R. W. Carter, of the class of 1883, finds no animal to so well fill his eye for beauty as the thoroughbred.

Dr. John T. Claris, of the class of 1882, set his spurs for the erection of one of the largest and most commodious hospitals in the "Queen City of the Lakes."

Dr. T. Bent Cotton, of the class of 1882, was a prime mover and officer in the National Veterinary Association of the United States.

Dr. Anderson Crowforth, of the class of 1891, is a noted admirer of the standard-bred trotter, and takes a keen interest in the wonderful performers of the present day.

Dr. R. R. Dinwiddie, of the class of 1886, finds the work of the State experiment stations congenial to his tastes.

Dr. F. H. P. Edwards, of the class of 1889, is an earnest association advocate.

Dr. Charles Elliott, of the class of 1870, continues to take a strong interest in the advancement of his alma mater.

Dr. Samuel Foelker, of the class of 1879, is one of the most earnest and zealous graduates of the college. He never tires in well-doing for the welfare of his patients.

Dr. E. A. A. Grange, of the class of 1873, was one of Ontario's most earnest students and was early called to impart his knowledge at the Guelph College, and now fills the rôle of Dean of the Veterinary Department of the Detroit College.

Drs. H. and J. Heckenberger, of the classes of 1878 and 1879, respectively, are among the Keystone State's most successful practitioners.

Dr. J. Z. Hillegass, of the class of 1890, is a great admirer and driver of the American trotter.

Dr. T. D. Hinebauch, of the class of 1887, has contributed much to the study of millet as an equine food.

Dr. W. J. Hinman, of the class of 1875, is one of the foremost promoters of the Manitoba Veterinary Association.

Dr. Albert Drinkwater, of the class of 1874, takes an active interest in his county veterinary association of New York State.

Dr. J. T. Duncan, of the class of 1872, has never wandered far away from the fold, and it would not seem like the old place to many to find him absent from old "Toronto's" walls on their annual pilgrimages to alma mater.

Dr. J. H. Frinck, of the class of 1879, for a number of years took much interest in the U. S. V. M. A. Association affairs for the Province of New Brunswick.

Dr. F. C. Grenside, another of the class of 1879, is an expert horseman, well versed in the judging and breeding of horses.

Dr. C. E. Hollingsworth, of the class of 1887, has proved a strong association member in the "Prairie State" organization.

Dr. Joseph Hawkins, of the class of 1871, has for many years been one of the most devoted members of the profession in the "Wolverine State."

The profession in Virginia had no more sincere and earnest worker among its members than in the late Dr. W. H. Harbaugh, a member of the class of 1885. He laid down his life for the advance of his chosen profession.

Dr. J. B. Irons, of the class of 1883, is an ardent worker in his calling and takes much interest in association affairs in the Keystone State.

Dr. Wilson Huff, of the class of 1885, never rests in his determination that veterinary sanitary police measures will prevail throughout the "Empire State."

Dr. William R. Howe, of the class of 1883, has long yearned for the U. S. V. M. A. to visit Dayton, Ohio, on one of its annual conventions.

Dr. J. Rein Keelor, another of the class of 1883, has long yearned for journalistic honors in the equine press.

Dr. Thomas King, of the class of 1889, was one of the promoters of the now defunct Ohio Veterinary College at Cincinnati, Ohio.

Dr. D. McIntosh, of the class of 1869, has contributed several publications to veterinary literature; they have been prepared and written in a popular way.

McEver Brothers, of the classes of 1877, 1890, and 1892, respectively, have won fame and fortune in the "Windy City."

Dr. C. C. McLean, of the class of 1883, is very active in promoting safeguards around the production and sale of milk, and at Meadville, Pa., has established one of the best systems extant.

Dr. W. A. Meredith, of the class of 1884, has placed himself

in line for future membership in the Keystone State organization, and is destined to be a worker in the ranks.

Dr. J. V. Newton, of the class of 1878, has wandered into the field of proprietary remedies, a field of danger and disappointment.

Dr. Claude D. Morris, of the class of 1888, has proved a faithful and diligent member of the flock, and is to-day an ardent worker for every veterinary reform.

Dr. L. A. Merrilat, of the class of 1888, is the able assistant of Prof. M. H. McKillip, of Chicago, and a member of the Faculty of the McKillip Veterinary College.

Dr. W. T. Monsarrat, of the class of 1889, is another member of the American colony in Hawaii. He is active in seeking legislative protection for graduates in that island.

Dr. J. H. Oyler, of the class of 1887, has an eye ever vigilant after those who would violate State laws, and has been an earnest supporter of State veterinary legislation in Pennsylvania.

Dr. Charles A. Sankey, of the class of 1894, is a frequent contributor to agricultural journals.

Dr. S. Sisson, of the class of 1891, remains a faithful worker in the ranks of the instructors of his alma mater.

The classes of 1871, 1877, 1884, and 1892 have each a representative as a graduate of the Somerville family of Buffalo, N. Y.

Dr. M. Stalker, at the head of the Veterinary Department of the Iowa Agricultural College at Ames, represents the class of 1877.

Dr. Thomas M. Sweeny, for several years Secretary of the Virginia Veterinary Association, is a graduate of the class of 1895.

No more faithful teacher and representative of the best interests of a college ever lived than Dr. C. H. Sweetapple, of the class of 1869, who has given long years of service to the Ontario Veterinary College.

The Drs. Sutterby, of Batavia, N. Y., represent respectively the classes of 1878, 1887, and 1889. They were among the early supporters to the movement that led to the formation of the present New York State Association.

Dr. S. E. Weber, of the class of 1884, still continues to suffer from the results of the injuries to his limbs, and is only able to move around by the aid of crutches.

The Wende brothers represent the classes of 1882, 1884, and 1886. Dr. John Wende, of Buffalo, is one of the most successful practitioners of that city and a contributor to the State Association programme and the JOURNAL's columns.

CANADIAN LIVESTOCK INSPECTORS.

Canada employs a large number of livestock inspectors located throughout the several provinces. The following-named veterinarians are employed under salary: J. A. Armstrong, Nelson, B. C.; M. C. Baker, Montreal, Quebec; A. Brown, Point Edward (Sarnia), Ontario; J. A. Couture, Quebec, P. Q.; Victor Daubigny, Montreal, Quebec; J. H. Frinck, St. John, N. B.; Wm. Jakeman, Halifax, N. S.; Jos. Kime, Chatham, Ontario; A. A. Leckie, Charlottetown, P. E. I.; C. McEachran, Montreal, Quebec; D. McEachran, Chief Veterinary Inspector, Montreal, Quebec; A. E. Moore, Montreal, Quebec; G. W. Orchard, Windsor, Ontario; M. B. Perdue, Kingsville, Ontario; W. H. Pethick, Central Bedeque, P. E. I.; P. A. Robinson, Emerson, Manitoba; Prof. Andrew Smith, Toronto, Ontario; B. A. Sugden, Montreal, Quebec; J. R. Thorne, Wallaceburg, Ontario; veterinary surgeons of the Northwest mounted police.

Two hundred and thirteen other veterinarians fill the rôle of inspectors, being paid by fees. The certificates of all these inspectors are accepted by the Department of Agriculture at Washington in the livestock exportations to this country: D. H. Ackerill, Belleville; James Airth, Chatsworth; James Armitage, Kincardine; Frederick Armstrong, Fergus; J. G. Alexander, Mono Road; Thomas Arrall, Caledonia, Ontario.

J. W. Bland, Vancouver, B. C.; Jas. A. Bean, Gananoque, Ontario; Josephus Baily, Barrie, Ontario; E. P. Ball, Stanstead Plain, Quebec; John W. Barr, Newton; George Beacom, Harriston; G. H. Belaire, Pembroke; J. E. Blackall, Clinton; William Brady, Tilsonburg; O. E. Brandreth, Cayuga; S. E. Boulter, Niagara Falls; David Bone, Chesley; W. F. Broad, Lindsay; C. J. Brodie, Claremont; Fred Charles Brown, Rodney; James A. Buchan, L'Original; J. C. Burk, Blenheim; W. H. Burns, King P. O.; C. W. Bell, Kingston; H. Bradshaw, Napanee; Frank Bryant, Sunderland, Ontario; Samuel Burkholder, Gore Bay, Manitoulin Island; P. T. Bowlby, Tweed, Ontario; M. G. Blanchard, Victoria, B. C.

A. B. Campbell, Berlin; W. J. Cunnington, Thornbury; Geo. S. Cavin, Princeton; James Chesney, Hensall; J. L. Clarke, Stratford; W. F. Clarke, Goderich; Richard C. Coates, Thamesville; William Coleleugh, Mount Forest; W. A. R. Coleman, Jarvis; R. Colgan, St. Catharine's; Richard Coghlan, Wyoming; R. Colthurst, Bothwell; J. M. Colvin, Teeswater; Hugh Cooper,

Toronto; D. Coristine, Oil Springs; J. J. Coutts, Galt; M. C. Crawforth, Whitby; James Cruickshanks, Heathcote; C. M. Culbertson, Meaford; D. Currie, Coldwater; W. H. Clapp, Dresden, Ontario; S. A. Coxe, Brandon, Manitoba; J. C. Christie, Greenwood, B. C.

Frank Daly, Sutton West, Ontario; W. Dann, Cranton, Quebec; Henry Domville, Woodstock, N. B.; John Donoghue, St. Thomas, Ontario; O. H. Duncombe, Waterford, Ontario; Charles Dwyer, Sutton, Quebec.

C. E. Eaid, Simcoe; Louis Eckert, Sebringville; John James Elliott, Clifford; John Engel, Milverton; W. Ewing, Keeswick, Ontario.

Wesley H. Farrow, Wroxeter; Robert Fawns, Parry Sound; John Fife, Palmerston; A. G. Fortune, Walkerton; C. D. Fortune, Shelburne; J. W. Fasken, Paris; R. H. Fortune, Ayton; F. Fisher, Carleton Place; H. W. Fry, Dunnville, Ontario.

William Gibb, St. Mary's; Orr Graham, Port Perry; James Grant, Bervie; W. J. Gerrow, Woodville; D. Geddes, Lucknow; Robert F. Golden, Windsor; Edward Golden, Elora; A. T. Goldie, Corunna; Robert Grant, Paisley; John Grieve, Seaforth, Ontario; J. O. Guy, St. Jean, Quebec; R. L. Graham, Schomberg, Ontario.

D. Hamilton, Harriston; Phil Harold, Tavistock; E. W. Heighway, London; D. Henderson, Glencoe; F. Hewitt, Hanover; John Howie, Guelph; C. R. Howell, Melbourne; D. Hood, Alliston; W. H. Huck, Mildmay; H. D. Hurd, Toronto, Ontario; H. R. Hunter, Coaticook, Quebec.

J. D. Irvine, Vankleek Hill, Ontario; J. J. Irwin, Waterloo, Quebec; George Ireland, Guelph, Ontario.

A. E. James, Ottawa; John C. Johnston, Chesley; W. J. Johnston, Brigden; Spencer Jupp, Petrolia, Ontario.

W. Kenny, Lindsay; R. T. Kidd, Listowell; B. W. Kitley, Sharon, Ontario.

Adam Landreth, Bright; Jos. Lambertus, Teeswater; Major Lloyd, Newmarket, Ontario; C. Little, Winnipeg, Manitoba; William Lawson, Dundas, Ontario; A. M. Livingston, Melita, Manitoba.

John W. Manchester, Apohaqui, N. B.; James Mayhew, Cookstown; H. S. Manhard, Smith's Falls; C. R. Mitchell, Owen Sound; A. S. Morrison, Chesterville; W. J. Morgan, Kingston; J. H. Morse, Shedden, Ontario; L. Mulligan, Shawville, Quebec; William Mole, Toronto; Malcolm Munro, Lancaster; J. A.

Mobray, Oshawa ; Arch McArthur, Elmvale ; Donald McAlpine, Brockville ; D. McArthur, Ailsa Craig ; D. McColl, Parkhill ; Thomas McConnell, Toronto, Ontario ; A. McCormick, Ormstown, Quebec ; D. McCuaig, Moncton, N. B. ; James McDonald, Summerside, P. E. I. ; John Henry McDonald, Wiarton, Ontario ; R. P. McGahey, Kemptville ; J. McGillicuddy, Watford, Ontario ; John McCurdy, Granby, Quebec ; David McIntosh, Brucefield ; James M. McKay, Malten ; W. H. McLaren, Highgate ; J. H. McLean, Paplar Hill ; W. B. McMicken, Plattsville, Ontario ; J. L. McMillan, Charlottetown, P. E. I. ; W. A. McNeely, Brooklin ; Arch McTaggart, Arthur ; R. H. McKenna, Picton ; D. D. McNaughton, Loggan ; J. C. McMurtry, Arnprior, Ontario.

F. S. Nixon, Dundalk, Ontario.

E. C. Oliver, Stayner ; S. Ottowelt, Feversham ; W. H. Orme, Ilderton, Ontario.

J. D. Paxton, Ayr ; J. N. Perdue, Blyth ; James Pickel, Drayton ; W. H. Pickering, Forest ; J. W. Porter, Burford ; John Prudham, Alvinston ; Thomas Purvis, Belleville ; John Perdue, Orangeville, Ontario.

J. Hugo Reed, Guelph ; W. H. Riddell, Orangeville ; W. H. Richardson, Essex ; F. L. Robinson, Peterborough ; C. L. Robson, Myrtle ; J. A. Roe, Attwood ; E. S. Rogers, Thessalon ; H. A. Rose, Selkirk ; W. B. Rowe, Ridgetown ; S. C. Rudd, Woodstock, Ontario ; A. E. Ramsay, Eden Mills, Ontario.

James Stewart, Nairn ; A. W. Shields, West Toronto ; Walter Shillinglaw, Mitchell ; E. P. Smith, Cambray ; Wm. Stevens, St. Mary's ; W. W. Stewart, Toronto, Ontario ; J. A. Stevenson, Morden, Manitoba ; E. Stevenson, Bradford ; Parker Stevenson, Norwood ; J. G. Stewart, Brantford ; Donald A. Stewart, Ivan ; Thomas Stirling, New Hamburg ; W. W. Stork, Brampton ; William Sweet, Exeter ; William Breckhill Sein, Elmira ; Charles L. Smith, Brantford, Ontario ; W. H. Smith, Carman, Manitoba.

W. Tanner, Mount Forest ; E. Tennant, Lucan ; J. H. Tennant, London ; M. H. Teneyky, Hamilton ; Fred Thomas, Tara ; A. E. Thompson, Warkworth ; J. H. Tooley, Delhi, Ontario ; A. W. Tracy, Cookshire, Quebec ; J. I. Tellier, St. Hyacinthe, Quebec ; Thomas Thacker, Renfrew ; Joseph Thomson, Orillia, Ontario.

Alexander Wannan, Oshawa ; John D. Warwick, Brussels ; Adam Watson, Coburg ; J. B. White, Port Hope ; T. H. Wilkinson, Port Elgin ; R. W. Wilkinson, Drumbo ; E. T. Williams,

Sunderland; J. M. Wilkinson, Ripley; John Wilson, Wingham; J. P. Whitehead, Napier; J. P. Whitehead, Strathroy; A. C. Wolfe, Durham; Jacob Wagner, Tavistock or Hickson; F. A. Walsh, Yarker, Ontario.

Robert Young, Bowmanville, Ontario.

CANADIAN NOTES AND PERSONALS.

Toronto, on May 7th, was the scene of a splendid horse-show and military tournament.

Influenza prevailed in epizootic form throughout the province of Manitoba during the spring months to quite a marked extent.

Good drivers and saddlers are in great demand in Ottawa, and are bringing good prices.

The city of Ottawa adopted an ordinance last fall making it compulsory for the dairies supplying milk to the city to furnish a certificate from a qualified veterinarian that their herds had been tested with tuberculin and that all were in healthy condition. Much credit is due to Drs. James and Perley, of Ottawa, Government veterinary inspectors, for the accomplishment of this very much to be desired movement.

Dr. D. K. Smith, of Toronto, is now in London, England, attending the leading hospitals and taking a special course in pathology under Prof. McFaydean.

Dr. Fred. Torrance, of Winnipeg, has been selected as one of the judges of horses at the Provincial Exhibition of British Columbia, to be held next October at New Westminster.

Dr. A. B. Campbell, of Berlin, reports a very busy season of practice.

Dr. J. A. Graham, of Claremont, will judge the Clydes, Shires, draughts, and general-purpose horses; Dr. Quinn, of Brampton, will judge standard breds, coachers, and roadsters, at the Winnipeg Industrial Exposition.

Dr. R. R. Dinwiddie, class of 1886 of the Ontario Veterinary College, has just issued from the Arkansas Experiment Station a bulletin on "Methods of Combating Communicable Diseases of Farm-animals."

Dr. Fred. Torrance, of Winnipeg, spent a week in June addressing Farmers' Institutes of the Province of Manitoba.

Dr. James A. Waugh, of Pittsburg, Pa., graduate of Ontario Veterinary College, is the happy parent of a new boy baby who has already been named for Dr. William J. Waugh, of the U. S. Army.

Veterinary Surgeon John Robertson, graduate of the Veterinary Department of the McGill University, holding the rank of second lieutenant of the Sixth U. S. Infantry, is on the official list of wounded sent by General Shafter to Washington ; he was formerly a member of Troop C, Second Cavalry, until appointed by the President on April 12th for commission. Dr. Robertson is well known to many members of the profession, having for years filled the position of an army veterinarian, but, tiring of the prospects of receiving a commission as a veterinarian, resigned his place and enlisted as a private and was advanced to the position of troop sergeant, and later to that of second lieutenant.

Dr. C. E. Elliott, of St. Catharine's, was the judge of the standard-bred stallions at the horse-show in Toronto in May.

Dr. W. A. Dunbar, of Winnipeg, Manitoba, answers many of the cases reported for advice in the *Farmers' Advocate*, of London, Ont.

Dr. A. G. Hopkins, of Neepawa, Manitoba, was a visitor to the East in the spring, having placed Dr. Will A. Hillary in charge of his practice.

Dr. Wilson Swenerton, formerly of Wawanesa, has removed to Carberry, Manitoba.

Dr. J. G. Rutherford, of the House of Commons of Ottawa, Canada, a representative veterinarian of Manitoba, is a hard worker and faithful advocate of the people's interests in provincial government.

Veterinarian C. A. Sankey, of Lowville, N. Y., a graduate of the Ontario Veterinary College, contributed an interesting article on "The Housing of Livestock, with Regard to Health," to the June 15th issue of the *Farmers' Advocate*, of London, Ontario.

Dr. C. L. Morin, of St. Albans, Vt., was a visitor to Ottawa during the latter part of June.

Dr. A. E. James, Government Veterinary Inspector, of Ottawa, accompanied the 43d Battallion to Burlington, Vt., on July 4th.

Dr. H. S. Perley, late inspector for the Vermont Cattle Commission, now of Ottawa, Ontario, has just returned from a trip to Vermont and New Hampshire.

EDITORIAL.

OUR CANADA EDITION.

THIS issue will reach more than one thousand active veterinarians in Canada and the Northwest. It will be read by more than fifteen hundred graduates of Canadian veterinary colleges, and we trust that it will in some measure add to the benefit of this entire number individually and collectively. It will, ^{we} we hope, bring more closely in touch with one another this very large number of veterinarians in this rich and progressive country of North America. In some we hope it will awaken a keener interest in the veterinary journalism of America, and thus bring to one and all a greater measure of responsibility of what each should share in its work, its advancement and progress. Canadian veterinarians outside of the Province of Manitoba have not been well enough organized, and many reform measures greatly needed for the good of all have not progressed and prospered as they should. Legislation, protective and needful, has not been forthcoming, and much that should have come to the profession in the way of support and recognition has not been attained. United efforts properly directed should have brought this about long ago.

AN EXCELLENT APPOINTMENT.

GOVERNOR HASTINGS, of Pennsylvania, deserves much credit for his prompt recognition of the importance of a delegate to the Congress on Tuberculosis, at Paris, July 27th to August 2d, and no more worthy or capable selection could have been made than is the appointment of Dr. Leonard Pearson to represent the Keystone State. Governor Hastings, as President of the State Live-stock Sanitary Board, directing, as he does, a work in our State that has never been undertaken by any other Commonwealth, bearing upon certain aspects of that all-important subject of tuberculosis, was quick to perceive the great good to be derived by having in touch with the world's most advanced students on this subject a delegate to present the work undertaken by our own State and to know of every line of investigation the world over. We are sure that no Governor of our State for many years has shown a keener appreciation of the welfare of all our people than the present Executive,

and none who have grasped more quickly the intimate relations of our agricultural and livestock industries and their broad and far-reaching influences upon the welfare of our people physically, mentally, and morally, not to mention its gigantic importance to a large body of our people from a commercial point of view. *A wise decision. An excellent appointment.*

MANITOBA, THE REALM OF VETERINARIANS.

WHAT can be done by and through organization has been more forcibly demonstrated in Manitoba than in any State or Province of North America. By a union of forces and the personal sacrifices of some of her veterinarians, Manitoba has felt all along governmental lines the influence and true interest of the best citizenship through representatives of the veterinary profession. Alike her people have appreciated how far-reaching are the benefits to be derived by a generous recognition of the profession, and the Province and her chief cities have to-day broad and wise legislation to guard the welfare and interests of all her people in the proper supervision of her food-supply, especially that of meat and milk. Her dairies are carefully guarded and her abattoirs under proper supervision, and, as a result, both producer and consumer are benefited in the largest measure.

Protective legislation has been given the profession, and recent amendments were made more appreciative of higher education, and better things are exacted and demanded by those who are to enter the Province in the future as veterinarians.

All of these matters and many others are directed by the veterinary association, which acts as a central head, directing legislation, conducting all examinations of candidates desirous of practising in the Province, protecting in litigation all her members and prosecuting all offenders. Every qualified member of the profession in the Province becomes a member of the association. WELL DONE, MANITOBA. Others should know more of your achievements.

THE JOURNAL is very glad to be privileged to announce to its readers that a report of the Congress on Tuberculosis, at Paris, will be given in an early number. Dr. Leonard Pearson, delegate from Pennsylvania, has kindly consented to prepare a special report for the JOURNAL, and we hope to thus keep all our readers and sup-

porters fully conversant with the latest thoughts and most recent advances in this very important line of work.

A THOUSAND active veterinarians in Canada, yet a layman was recently chosen to teach farmers and stockowners "how to test animals for tuberculosis." Aside from the danger such a movement created, what about her recognition of this vast body of earnest men educated in Canadian colleges, partly by governmental assistance. Are her executive authorities trying to turn the hands of the clock of time backward? Is not this vast body of veterinary sanitary police to be your greatest safeguard from the dangers lurking in your food-supply? Why will you choose to ignore that which they can best give, and which to your people is a right, and why step on such dangerous ground both physically and commercially?

EVERY reader of this number of the JOURNAL fully appreciates the value and justice of recognition, with rank, of the veterinarians of the American army. Canada already has gained this for the profession in the mounted service of that country, and fully realizes the disadvantages of the members of the profession in the American army. All points of vantage and all statistics will be valuable to those who are pressing the movement in this country, and our colleagues across the line can help us in this way. It is now the opportune time; it is now that we must force the issue, and it can only be done by united effort. Move the good cause along in your district. It may be by a letter to your Congressman; it may be by an interview; it may be by a few lines in your local paper. Use every honorable means for its achievement.

MARRIAGES.

At Kansas City, Mo., June 22, 1898, Dr. Thomas Jackson Turner to Miss Ella Bates. Dr. Turner is a graduate of the American Veterinary College, ex-State Veterinarian of Missouri, ex-Secretary of the United States Veterinary Medical Association, an attache of the Bureau of Animal Industry, now located at Indianapolis, Ind., where the newly married couple will make their home after July 15, 1898.

SEVENTH INTERNATIONAL CONGRESS OF VETERINARY
SURGEONS AT BADEN-BADEN, 1899.

IN accordance with the resolution of the Sixth International Congress of Veterinary Surgeons, held at Berne in 1895, the Seventh Congress will take place at Baden-Baden in the year 1899. The veterinary surgeons of Baden are intrusted with the carrying out of the arrangements. With the consent of an international meeting, held at Stuttgart in June, 1896, they have formed the undersigned Committee of Management, which has resolved to hold the Congress in Baden-Baden in the first half of August, 1899.

The programme is as follows:

Precautionary measures against the spread of epidemic diseases in consequence of international trade in animals.

The prevention of tuberculosis among domestic animals and the use of the flesh and milk of animals suffering from this disease; and, connected with this, the latest demands for an effectual meat-inspection.

The prevention of foot- and-mouth disease.

The prevention of swine fever.

The forwarding of veterinary science, especially by the erection of institutions for experiments in diseases, and by founding chairs of comparative medicine in colleges for veterinary surgeons.

Conclusion of the work of the drawing-up of a common nomenclature in veterinary medicine.

Official veterinarianism.

(This programme may be altered or supplemented if generally desired.)

In the proceedings, besides the German language, English and French will be permitted. Arrangements will be made for the immediate translation of all speeches and reports.

In consideration of the great expenses connected with the Congress, the fee for members is fixed at M12=12 s. For ladies who wish to attend the Congress, ladies' tickets will be issued on application; price, M6=6 s.

Every member, even if unable personally to be present in Baden-Baden, will receive copies of all publications of the Congress, including the General Report. The sale price of this report, which the members will receive free of charge, is fixed at M16.

Arrangements for rooms for members of the Congress will be made by a lodgings committee in Baden-Baden. We are already

in a position to state that those who take part in the Congress will be able to find board and lodging from M6 per day. The town of Baden-Baden has undertaken by arrangement with the Baden Committee to provide special entertainments and festivities for the members.

The Grand-ducal Government of Baden and the Chancellor of the Empire have generously made a considerable grant toward the expenses of the Congress.

Dr. Lydtin, Geheimer Oberregierungs-rath, Lichtenthalerstrasse 9 Baden-Baden, will be happy to give any further information which may be desired.

The Filiale der Rheinischen Creditbank in Baden-Baden will act as treasurer.

For information respecting lodgings apply to the Ortsausausschuss des ^{7.}Seventh Internat. Thierarztl. Kongresses, Lichtenthalerstrasse 9, Baden-Baden.

The committee of management, in issuing invitations to the Congress, feels it may safely assure those who desire to take part in it that the time spent in Baden-Baden will not only be of the greatest professional importance, but will also offer the participants the pleasures and amusements of a first-class watering-place.

In the name of the Committee of Management of the Seventh International Congress of Veterinary Surgeons,

DR. LYDTIN,

President.

BADEN-BADEN, 15th June, 1898.

JOURNAL SPECIAL TO THE U. S. V. M. A.—OMAHA, SEPTEMBER
6-9, 1898.

As the time is fast approaching for the members of the profession to determine upon their plans for reaching the convention city of our 1898 meeting, it has been decided to, so far as possible, go in a body, and for this end the following plan has been adopted as the one best suited for the largest number of our members both East and West. After considering the merits of the several roads leading from the East to the Missouri River, the one affording the most direct and convenient arrangements will be the Pennsylvania Railroad from New York, Philadelphia, Baltimore, Washington, and Pittsburg to Chicago, and thence via the Burlington route (C., B. & Q.) from Chicago to Omaha.

Our plans are to centre at Chicago from all diverging points as

many members of the profession as possible, and should the number warrant it, the Burlington route have agreed to run a *Journal Special* from Chicago to Omaha.

Itinerary.—Leave New York September 3d, 2 P.M.; Philadelphia, 4.50 P.M.; Baltimore, 4.35 P.M.; Washington, 3.30 P.M.; Harrisburg, 7.30 P.M.; Pittsburg, 1.00 A.M. Arrive at Chicago, September 4th, 5 P.M. Leave Chicago, September 4th, 5.50 P.M. Arrive Omaha, September 5th, 8.10 A.M.

Rates authorized by the Trunk Line Association is a fare and one-third on the certificate plan. By this arrangement members of the profession and their friends will purchase from their ticket agent, by the route above mentioned, a regular one-way first-class ticket, taking certificate for the same, which will be honored at Omaha on proper indorsement by joint agent for a return ticket at one-third of amount paid on going trip.

For the information of Eastern delegates, we give below the one-way rates from prominent points to Omaha: New York City, \$32.75; Trenton, N. J., \$31.80; Philadelphia, \$31.00; Wilmington, Del., \$31.00; Baltimore, Md., \$29.50; Washington, D. C., \$29.50; Lancaster, Pa., \$30.33; Harrisburg, \$29.25. Rates from other points not named can be secured upon application to any ticket agent of the Pennsylvania or connecting roads. Parties residing off the main line of travel can join the special party at points above named en route.

Sleeping-car rates from New York and Philadelphia to Omaha for double berth is \$7.50; this, of course, can be reduced one-half where two occupy the same berth. Rates from other points proportionate. As sleeping-car space will have to be paid for when reservations are made, I would request that the above amount accompany order for such reservation. Preference as to location of berths will be given those who apply first.

The entertainment already assured by our colleagues at Omaha will be of such a character that must add in great measure to the attraction and pleasure of this annual professional pilgrimage, and the greater attendance of the members of the profession, their wives, and those interested in our work, must add much to the fullest enjoyment of this trip.

Those members residing in the South who will not find it convenient to travel via Chicago can use the Burlington route's fast-train service from St. Louis to Omaha, addressing Mr. J. G. Delaplaine, city passenger agent of that line, corner Broadway and Olive Street, St. Louis, Mo., for sleeping-car space.

Those members residing in Canada, northern New York, Michigan, Wisconsin, Ohio, Indiana, and Illinois, joining the *Journal Special* at Chicago can make their reservations by addressing Mr. Frank E. Bell, city passenger agent, Burlington route, 211 S. Clark Street, Chicago, Ill. The rate for double berth from Chicago to Omaha is \$2.50.

Those from the East joining the special party may have space reserved for them from New York, Philadelphia, or points named, or from Chicago, by remitting amount to the undersigned.

For further information, address W. HORACE HOSKINS,

Managing Editor of Journal of Comparative Medicine and Veterinary Archives,
3452 Ludlow Street, Philadelphia, Pa.

ARMY DRIFT.

Complaint after complaint reaches us from those engaged in the veterinary service of the army.

Each battery of light artillery provides for a veterinarian and stable sergeant; 144 horses are allotted to a battery.

The farrier provided for in the cavalry is supposed to attend to the ailments of the horses in that service, no veterinarian being provided for.

At Chickamauga, in June, there were nine batteries of artillery, and of those that had horses issued them quite a number were lost; some six to ten to each company. A large number were unfit for service. Influenza, infectious pneumonia, glanders, and periodic ophthalmia have been very prevalent among the army horses.

At Tampa, Fla., very little effort seems to have been made to provide veterinary medical attendance for the horses. The number of deaths have been very heavy. Any evidence of a proper system of inspection was painfully absent. Sick and well were corralled together. No provision for isolation of those suffering with infectious or contagious diseases. Many bore evidence of having been shipped in a wholly unfit condition. Apparently no system of car-inspection or disinfection was adopted in shipping these animals to Southern military posts.

A staff correspondent of the New York *Times*, speaking of the army veterinary service and the need of a more extended corps of veterinarians as commissioned officers with the needful authority for the better control and regulation of the livestock interests of our army service, makes many strong points that must appeal to

the taxpayers of the land, upon whose shoulders must fall the burden of unnecessary waste and loss in this department. He asks why a consulting or managing veterinarian is not maintained at the War Department. Attention is called to the reckless expenditure of money in the purchase of animals totally unfit for the service, and points to the late war and its terrible losses from infectious and contagious diseases. Our losses in times of peace are quoted at 30 per cent.; European armies under proper government veterinary inspection, 10 per cent. The incomplete character of veterinary supplies, the crude medicine-list, the absence of up-to-date methods and facilities for treatment, are all to be noted in our armies. As a civilian, the veterinarian cannot render the government the full service he is capable of, and so brief is his authority that he is powerless to stem the present tide of losses.

The regiment is unfortunate in one thing, and that is the large number of horses on sick-report. Distemper, pink-eye, stiffening in the limbs, are very prevalent among them. It would seem that the government acted very shortsightedly in not providing a veterinary surgeon for each cavalry regiment. The loss in the number of animals already recorded throughout the army, and especially among the cavalry regiments in the South, it is estimated would pay the salaries of a good veterinary surgeon for each regiment for the next two years. There is a movement among the commanding officers of the cavalry regiments to petition Congress to enact a law providing for veterinarians, and it is earnestly hoped that the appeal will not be in vain.—*Black Hill Press*.

The need of properly trained veterinarians to direct the unloading of the horses in connection with General Shafter's invading army was woefully evident, and the loss from injury and drowning were uncalled for in these times when competent and trained men are ready for the army service when proper rank is accorded.

Our Secretary of War has found the aid of Secretary Wilson, of the Department of Agriculture, of the greatest assistance in dealing with questions involving the livestock and rations of the horses and mules. Secretary Wilson fully appreciates the value of the services of veterinarians in his department, clothed with proper authority, and his aid to the Secretary of War must be a forceful reminder to Secretary Alger that there must be commissioned veterinarians in his department, if he is to avoid much just criticism for the suffering and unnecessary losses in his department. Good veterinarians have left the army service because of this lack of recognition. Others will not tender their services until this

unjust discrimination against a scientific profession is remedied. Will not Secretary Alger act promptly in this matter?

Will our Government repeat again the imposition of so great a burden upon the livestock owners of our land as it did after the Civil War by the sale of hundreds of glandered horses and mules?

It was estimated that on July 1st the United States had invested \$5,000,000 in horses and mules, and this sum of money placed in perishable property that was destined to shrink at a frightful rapidity, not to speak of the total losses endangered and the progress of the service retarded owing to a lack of proper competent veterinary service. How much longer will a long-suffering profession be treated in this way? How much longer shall our tax-burdened people allow this wilful waste?

Japan leads us in the recognition of veterinarians in her army service, while our enemy, the Spanish, have all their army animals under the control of commissioned veterinarians.

While our Government has done little for veterinary education in our country, leading institutions like Harvard, University of Pennsylvania, Cornell, Ames, not to speak of such successful institutions as the American, New York College of Veterinary Surgeons, and many others, have recognized the need of higher veterinary education, fully equipping many educated young men for this profession. In several of the leading veterinary departments of universities, this year, where part of the teaching is conducted in the medical and scientific departments, many of the veterinary students have attained the highest markings, outstripping many of the students in the medical department. It is too late a day to set up inferiority in education as a reason for denying this recognition of a long-suffering profession. Our Government owes it to itself to grant what has been gained by the calling in every other walk of life and State and municipal government.

Dr. W. A. Martin, of Battery A, located at Newport News, Va., joins in the protest of the neglect of the horses in the army; insufficient provision for needful medicines and the ignoring of requisition for the same are resulting in a great shrinkage of value of perishable property of our government.

After many losses of horses at Chickamauga, the quartermaster was authorized in July to engage the services of an *experienced veterinarian* for a period of three months at a salary of seventy-five dollars per month. Surely, without the promise of permanency, a commission, or future provision, our army authorities do not expect to obtain efficient services for such compensation.

A. H. Waddell, "late of the British Army Veterinary Department," sends us an argument in favor of establishing a veterinary department in our army such as they have in the British service. He says: "All the great armies of the Old World maintain a very efficient veterinary corps in connection with the mounted branches of their services, and no other element has been found of greater necessity, usefulness, and importance than the one in question. Its importance and absolute necessity are proved by the enormous amount of money saved by the Government yearly, not only in horses alone, but by the health, condition, and efficiency of the horses of the mounted and transport services, which are due entirely to the efficiency of the veterinary officers of this most estimable and necessary department. I venture to predict that if it is found necessary to send a large body of cavalry, artillery, and transport to Cuba, that the mortality among horses will be enormous; horses not in condition for such service will be sent, and those that are will die like 'fish out of water,' simply from altered conditions and surroundings, and because there will be no properly disciplined, instructed, qualified, and competent veterinary officers to treat them."

A veterinary surgeon of our army writes as follows: "It is useless to go into our well-known situation again, as I know it has been, too often perhaps, brought to the attention of Congress and army authorities, but without results. We are now situated where, as the term has it, we will have to take it in the neck or quit, and the members of this army do not do the latter until they are counted out for good. A number of us are married, and, in some instances, have families; in case a Spanish bullet carries one of us off there is no provision made for those we leave behind, although the last raw recruit joining has such protection; should we, on the contrary, have the good luck to accomplish some brave act worthy of recognition, we should still remain as we are, half citizen and half soldier, and without any definite place or rank in the regiment, as there would be nothing from which to make a start; we have struggled along in this manner for years, some of us for over thirty, hoping against hope that something would be done to put us on a definite basis. And now that we are about to stake our lives and health, we for the last time hope and ask that Congress will give us a recognized standing and one commensurate with our education, training, and intelligence, and ask the assistance of your influential and recognized paper in our behalf.—*Army and Navy Journal*, July 9, 1898.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

Officers and Committees, 1898-1899.

President, George B. Jobson, Franklin, Pa.; First Vice-President, J. Curtis Michener, Colmar, Pa.; Second Vice-President, J. F. Butterfield, South Montrose, Pa.; Third Vice-President, F. F. Hoffman, Brookville, Pa.; Treasurer, Francis Bridge, Philadelphia, Pa.; Recording Secretary, Jacob Helmer, Scranton, Pa.; Corresponding Secretary, W. L. Rhoads, Lansdowne, Pa.

Legislative Committee: Chairman, W. Horace Hoskins, 3452 Ludlow Street, Philadelphia, Pa.; B. F. Bachman, Strasburg, Pa.; W. H. Ridge, Trevoise Pa.; J. W. Sallade, Pottsville, Pa.; Leonard Pearson, 3608 Pine Street, Philadelphia, Pa.; Thomas B. Rayner, Highland Avenue, Chestnut Hill, Philadelphia, Pa.; J. C. McNeil, 26 Fourth Street, Pittsburg, Pa.

Committee on Intelligence and Education: Chairman, H. B. Felton, Olney, Pa.; J. F. Butterfield, South Montrose, Pa.; W. S. Kooker, 1116 Wallace Street, Philadelphia, Pa.; C. C. McLean, Meadville, Pa.; James A. Waugh, 813 Forbes Street, Pittsburg, Pa.; C. R. Good, Lock Haven, Pa.; R. J. Mumma, Hanover, Pa.

Committee on Sanitary Science and Police: Chairman, Leonard Pearson, 3608 Pine Street, Philadelphia, Pa.; Otto G. Noack, Reading, Pa.; Clarence J. Marshall, 2022 Pine Street, Philadelphia, Pa.; J. Stewart Lacock, 38 Diamond Street, Allegheny City, Pa.; E. M. Ranck, 427 N. Forty-first Street, Philadelphia, Pa.; R. C. Rice, Towanda, Pa.; J. B. Irons, Erie, Pa.

Trustees: James B. Rayner, West Chester, Pa.; W. Horace Hoskins, 3452 Ludlow Street, Philadelphia, Pa.; W. H. Ridge, Trevoise, Pa.; J. C. McNeil, 26 Fourth Street, Pittsburg, Pa.; James W. Sallade, Pottsville, Pa.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

In the absence of the President and Vice-President, the regular monthly meeting was called to order June 1, 1898, at 8.45 P.M. by the Secretary.

On motion, the Chairman of the Board of Censors was voted to the chair. The following members responded to roll-call: Drs. Amling, C. C. Cattannach, J. S. Cattannach, Ellis, Gill, Lamkin, Lellman, Machan, MacKellar, O'Shea, and Ryder. The minutes of the previous meeting were read and approved.

Dr. Gill, Chairman of the Board of Censors, reported as follows: Whereas, at the March meeting Dr. Huidekoper, on the impulse of the moment, unintentionally slighted Dr. Bell, by failing to recognize Dr. Ackerman in the debate, as per programme arranged by Dr. Bell as Chairman of the Ways and Means Committee, and Dr. Huidekoper, having recognized his error, and having made an apology to Dr. Bell, it is resolved that the Secretary be instructed to ask Dr. Bell to withdraw his resignation as Chairman of the Ways and Means Committee. Moved and seconded that the report be accepted; carried.

Dr. Lellman read a paper entitled, "Multiple Sclerosis of the Brain and Spinal Cord of a Dog."¹ Moved and seconded that a vote of thanks be extended to the essayist; carried.

Dr. Ryder, Chairman pro tem. of the Ways and Means Committee, stated that he thought it was the function of this committee to attend to any such arrangements as were to be made for the reception of Veterinary Medical Society of the State in September.

Dr. O'Shea, for the Judiciary Committee, reported that this committee had received several reports of illegal practitioners, but so far were unable to secure specific evidence against the parties accused, and, until they could do so, the committee deemed it unwise to take any action in the matter whereby the Association would be made liable. Moved and seconded that the report be accepted; carried.

A communication to the Association was read by the Secretary, as follows:

DR. R. W. ELLIS, Secretary Veterinary Medical Association of New York County, New York City,

SIR: I have the honor to submit my resignation to the Veterinary Medical Association of New York County.

Will you please present to the members my thanks for their courtesies and my hopes for their well-being and the success of the Association.

Very faithfully yours,

RUSH S. HUIDEKOPER,
Lieutenant-Colonel and Chief Surgeon,
Care of War Department, Washington, D. C.

Discussion. Moved and seconded that the matter be referred to the Board of Censors; carried.

Moved and seconded that a recess of ten minutes be taken while the board could take action on Dr. Huidekoper's resignation; carried.

The Board of Censors subsequently offered the following report: *

We recommend that the resignation of Dr. Huidekoper be accepted, and that the Secretary be authorized to notify Dr. Huidekoper of the same, expressing the Association's well wishes for him in his new field of labor.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

MANITOBA VETERINARY ASSOCIATION.

THE annual meeting of the Association was held at Winnipeg, February 15, 1898. Drs. Hinman, F. Torrance, Dunbar, Swinnerton, Thompson, Little, Spiers, Hilliard, Hilton, Williamson, Robinson, and Nagle were present.

Several amendments to the by-laws were considered and read.

Examination fee of candidates desiring to practise in the province was raised to twenty-five dollars, which, in the event of failure to pass, would entitle them to a second examination within six months.

The receipts of the Association showed \$535.59, and the expenditures \$213.36, leaving on hand in the treasury \$322.23.

The province has forty-nine qualified practitioners, and two have not completed qualifications.

¹ See page 466.

The council of the Association elected for the year 1898 are: Drs. Dunbar, Torrance, Young, Little, Spiers, Swinnerton, and Hilton. The council selected Dr. Little for President; Dr. Spiers, Vice-President; Dr. Dunbar, Secretary-Register; Drs. Torrance, Dunbar, and Little, Examiners of the Association; Drs. Williamson and Robinson, Auditors. The annual fees were fixed at two dollars.

Dr. Hilton presented a paper on "The Progress of Veterinary Science." It was discussed and commended by members Thompson, Dunbar, Torrance, and Spiers.

Dr. Hilliard presented a paper on "Influenza." The paper was commended for its concise presentation of the subject, and discussed by Drs. Hinman, Torrance, and Dunbar.

The semiannual meeting will be held in Winnipeg. The subjects of ovariectomy, dehorning, and secondary hemorrhage were discussed and reported upon.

The proceedings were ordered to be printed for distribution among the members. Infractions of the laws governing the practice of veterinary science in Manitoba were reported upon, discussed, and referred to the council.

Some Features of the Manitoba Veterinary Association.

The Manitoba Veterinary Association is an incorporated body.

It conducts all examinations of those desiring to practise in the province. The fees for the same go into the general treasury of the Association. An average of 75 per cent. must be obtained to pass.

All prosecutions and investigations are conducted under the auspices of the Association, and placed in charge of the council.

Only qualified members are eligible to membership in the Association.

Members of the Association are protected in litigation by the council. Unprofessional conduct of any member is punished by debarment from the privileges of prosecution, defense, and other safeguards of the society.

The various acts and amendments relative to the Association were consolidated on March 19, 1896. After 1898 all applicants for membership and practice in the province must be graduates of colleges with curriculums of three years of six months each.

Only those provided for under this act shall have the right to collect fees for professional services, cost of medicines, or medical appliances supplied in a professional capacity.

No district veterinarian or veterinary surgeon in any branch of the public service of the province can be appointed unless registered as a member of the Association, and those duly registered shall be entitled to professional fees for giving evidence in such cases as relate to the veterinary profession. Castration and spaying are exempted from the provisions of the act.

Penalties are provided for violations, and methods of procedure are provided.

The Association is further privileged to hold real-estate not in excess of five thousand dollars, and may use this as it sees proper; may erect buildings for its work, and for lectures and teachers in connection therewith, and for a library and other purposes proper for the objects of the Association.

VETERINARY MEDICAL SOCIETY OF THE ONTARIO VETERINARY COLLEGE.

THE last regular weekly meeting of the Society for the present college year was held March 11th. During the college session one hundred and fifty-six papers were read on various subjects of interest to the students. The discussions were exceedingly interesting and instructive, thus impressing many valuable points upon the minds of the students. The following is a list of the papers read during the past month :

Essays : "Rinderpest," T. I. Fletcher ; "Gid," B. W. Groff ; "Hernia," W. L. Adams ; "Actinomycosis," E. T. Cunningham ; "Aloin," T. Lam-brechts ; "Incompatibility," Hamlet Moore ; "Rabies," H. W. Stedman ; "Heredity," G. P. Hayter ; "Cocaine," G. K. Cranston ; "Anthrax," C. Owens ; "Azoturia," A. D. McLachlin ; "Barium Chloride," T. Rowland ; "Shoeing," J. A. McDonald ; "Nux Vomica," W. E. Fairbanks ; "Lithotomy," G. W. Higginson ; "Ophthalmia," F. M. Hayward ; "Chlorodyne," J. P. Howland ; "Ovasectomy," E. B. Truitt ; "Creolin," J. Short ; "To Class of '98," W. H. Corey.

Communications : "Punctured Wounds," A. H. Krull ; "Acute Indigestion," S. Caldbick ; "Fistula of Steno's Duct," D. S. Jones ; "Gunshot Wound," J. W. Rutledge ; "Diarrhœa," A. P. Lubach ; "Wisdom of Examining Foot," J. S. McIntyre ; "Œsophagotomy," J. P. Howland ; "Tympanitis," E. B. Truitt ; "Pectoral Injury," J. Dixon ; "Strychnine Poisoning in Dog," C. Owens ; "Spasm of Diaphragm," A. G. Van Tine.

C. W. FISHER,
Secretary.

Resolutions of the Ontario Veterinary Medical Association.

The Ontario Veterinary Medical Association has adopted the following resolutions : 1. That the tuberculin-test needs to be safeguarded by certain precautions not possible to those without professional experience. 2. That it is not in the interests of the farmers of this province to have any person authorized to instruct them in the use of tuberculin as a test for tuberculosis, as it is liable to create unnecessary alarm concerning the health of the cattle of Ontario. 3. That a continuation of the present methods will bring the tuberculin-test into disrepute, for the following reasons : That animals destined for shipment to the United States may be injected with tuberculin by the owners, and the subsequent test of the Dominion Veterinary Inspector rendered both useless and deceptive, paving the way for fraud and consequently injuring the livestock trade for this country.

COMMENCEMENT EXERCISES.

MCGILL UNIVERSITY, VETERINARY DEPARTMENT.

MCGILL UNIVERSITY on the afternoon of March 25th increased its long list of graduates by twelve, and at the same time augmented by that number the ranks of those who are entitled to practise the profession of veterinary science.

The function at which this took place was in all respects similar to the many annual convocations of the Faculty of Comparative Medicine and Veterinary Science that have previously taken place in the William Molson Hall.

The exercises were presided over by Mr. George Hague, who was accompanied on the platform by Principal Peterson, Rev. Dr. Clark Murray, Prof. M. C. Baker, Prof. Charles McEachran, Prof. Moyse, Prof. Cox, Prof. Girdwood, Prof. Adami, Prof. Adams, Dr. Morrow, Dr. Bunn, Mr. C. J. Fleet, Mr. W. Vaughan, bursar, and others.

The proceedings were opened with the offering up of prayer by Rev. Dr. Clark Murray, after which Dean McEachran read the faculty lists.

Prizes were then presented to the winners thereof by the chairman, amid applause, viz: Veterinary Medicine and Surgery, W. B. Wallis; Cattle Pathology, W. B. Wallis; Pathology, W. B. Wallis; Materia Medica, W. B. Wallis and W. L. Bell, equal; Anatomy, James McGregor; Physiology, James McGregor; Chemistry, James McGregor; Botany, B. F. Humphries. The dean's silver medal for best general examination in all subjects, W. B. Wallis. Best essay read before the Veterinary Medical Association, J. W. Symes, 1; W. L. Bell, 2; W. B. Wallis, 3. Best essay read before the Society for the Study of Comparative Psychology, J. B. Hart, 1; L. A. Paquin, 2; Junior Class, E. W. Hammond. Examination of Horses for Soundness, W. L. Bell.

Dean McEachran spoke of his late visit to the veterinary colleges, medical colleges, and other scientific institutions of Great Britain, France, Germany, and Denmark. In the course of his remarks he assured his hearers of the unflagging interest that Lord and Lady Strathooma and Mount Royal evinced in McGill University. He referred to the greatly increased interest taken in Canada and Canadian affairs in the Old World, which he attributed largely to the advertisement that the Dominion received through the representation made at Her Majesty's jubilee celebrations. He alluded to the high esteem in which Sir Wilfrid Laurier was held by all classes on the other side of the Atlantic, and spoke of the favorable impression which the members of the British Association, and especially the members of the British Medical Association, had carried away with them after their visit to Canada last year. The Dominion, he said, never had better emigration agents. In conclusion, he urged for consideration the suggestions deduced from the experiments of these older countries, and expressed the hope that before long, instead of the public of Montreal and other large Canadian cities using milk from cows fed upon very indifferent food, confined in filthy, undrained, and unventilated byres, milked in the early hours of the morning, either in the dark or by dim candle-light, without any washing of the udders, without even washing of the milkmen's hands, public opinion would compel the vendors of this important article of human food to handle it in a common-sense and cleanly manner. He also expressed the hope that the consideration of these matters might lead the benefactors of McGill to add to its teaching staff a faculty of agriculture.

The degree of D.V.S. was then conferred on the graduating class, the oath being administered by Mr. Vaughan, and the capping performed by Principal Peterson. Those who received the degree were: W. B. Wallis, J. P. Spanton, W. L. Bell, D. Cullen, L. A. Paquin, B. K. Baldwin, J. B. Hollingsworth, A. W. Cleaves, J. B. Hart, G. H. Lambert, J. G. Pfersick, and G. H. Burke.

The valedictory on behalf of the graduating class was delivered by Dr. W. L. Bell, who spoke of the need of new buildings for the faculty, tendered some advice to his fellow-graduates, urging them not to fall behind in their knowledge, but to take every means in their power to keep up to date in their profession, and concluded by referring in kindly terms to the several members of the teaching staff.

Prof. M. C. Baker, on behalf of the faculty, extended sincere congratulations to the members of the graduating class on the successful termination of the session's work, and expressed the hope that an increased measure of success might attend them in the practical application of the knowledge they had acquired at college. In the treatment of their patients he counselled the graduates ever to bear in mind that although animals lacked the faculty of speech, they were endowed with sensibilities as acute as those who possessed that faculty. He urged them never to inflict unnecessary pain, never to countenance cruelty in others, and never to neglect the use of anæsthetics, local and general, for they were as indispensable in veterinary as they were in human surgery.

Principal Peterson associated himself with the expressions of appreciation that had fallen from the lips of Mr. Hague in reference to the remarks of Dean McEachran, and especially in the direction he had suggested regarding agriculture and farming operations. He expressed the hope that any future extensions of the work of the faculty would always rest on the basis of the present dean's sound scholastic training and on a comprehensive study of the science that underlaid the profession of the veterinarian—biology, comparative pathology, physiology, etc. Increased attention to such requirements would do more than anything else to raise the standard of the veterinary profession and to attract a larger proportion of well-educated young men to its ranks. Addressing all the graduates, he asked them ever to maintain the dignity and to exalt the credit of their alma mater, and never in any way, by word or deed, to tarnish the lustre of the degree which had been conferred upon them that day.

The proceedings closed with the pronouncing of the benediction by Rev. Dr. Clark Murray.

ONTARIO VETERINARY COLLEGE.

THE students of the Ontario Veterinary College gathered in the lecture hall of the college on the afternoon of March 25th, the occasion being the annual closing exercises and presentation of prizes. Great interest was taken in the proceedings by the students, and as the names of the successful prize-winners were read out they were heartily applauded. On the platform were Hon. E. J. Davis, Provincial Secretary; Dr. J. T. Duncan, Professor A. Smith, F.R.C.V.S.; Thomas Crawford, M. P. P.; Dr. Thorburn, Major Lloyd, V.S., and the Examining Board, J. D. O'Neill, London; W. Shaw, Dayton, Ohio, and Prof. Sisson, President of the Ontario Veterinary Association; C. Elliott, St. Catharine's; Dr. Amyot, of Toronto University.

A short address to the students by Dr. Smith opened the meeting. The Principal said he did not intend to detain them long, as he knew that they were anxious to get home. He congratulated the successful students and urged perseverance on the unsuccessful.

The gold medalist for the year was Mr. C. W. Fisher, of Cabot, Vermont.

After the presentation of prizes had been completed, Professor Smith introduced the Hon. E. J. Davis to the meeting. The Provincial Secretary met with a hearty reception from the students. He expressed his pleasure at what he had seen and at the complete equipment of the college. In the thirty-five years the college has been in existence thousands of scholars had passed their examinations and gone forth to carry on their calling through all parts of the world. In order to become successful, however, the examination was only the beginning not the end of the student's progress. He was sure that Dr. Smith felt pleasure in seeing the many students who had passed through the college and were now eminent in their profession. He advised the students to go ever forward, and he felt sure the students would by their future work realize the importance of their position. Their profession was an important and honorable one, and great responsibilities rested upon them, as they held in their hands millions of dollars worth of property of other people. Some of them might say that their profession was not as good as it used to be, but all businesses had felt hard times. In the veterinary profession, however, the cloud was rolling away. Horses were to-day more valuable than they ever were, and would be still more so. He thought the profession would participate in the good times we were entering upon. With reference to the students from the United States, the speaker was glad to welcome them. He desired the most friendly feeling between Canada, the United States and England. (Applause.) He thought it was a valuable testimony to the success of the college that so many students from the United States selected it. He thought no better compliment could be paid to Dr. Smith and associates. Hon. Mr. Davis closed by wishing all the students prosperity, and wishing Dr. Smith increasing success in the conduct of this important school.

Major Lloyd, one of the examiners, also wished the students every success in their profession. He hoped those from a distance would remember the kindly associations they had met with at the college. He felt that the students this year had done excellent work.

Dr. Thorburn gave a few words of advice to the students, and urged them to uphold the honor of their profession. Do not work too hard, remarked the doctor jocularly, but think of what you are doing, and then they would find that there was always room for one on top. He was very pleased with the result of the examinations, as it showed there was a class of earnest men.

Mr. Charles Elliott, of St. Catharine's, impressed on the minds of the students the importance of looking after the associates they kept, particularly as they were just starting out in life. They should also continue to study and subscribe for such papers as would keep them posted.

Mr. D. L. Devereau, president of the graduating class, then, amid the cheers of the students, presented Professor Smith with a group photograph of the class. He also extended a vote of thanks from the class for the considerate manner with which the students have been treated by Professor Smith and those associated with him. The class also desired to include the examining board in the vote of thanks. At the conclusion the students gave three ringing cheers for Professor Smith.

The latter, in the name of his colleagues and himself, returned thanks for the manner in which Mr. Devereau had referred to those connected with the college, and also for the presentation of the class picture. He hoped to

be spared many years to see that picture and many others that graced the walls of the college. In parting with the college he hoped the students would always have a friendly feeling toward the institution. During the time he had been connected with the college very many scholars had come from the other side, and he noticed there was very little difference in matters of education between the two peoples. He believed also that the feeling between Canada and the United States was most friendly. The proceedings closed with three cheers for Hon. Mr. Davis. The latter thanked the students for their kindness, and once more wished them success.

Following is a full list of the graduates :

Walter J. Ackerman, St. Albans, Vermont; William L. Adams, Cabot, Vermont; Daniel Allen, Chesley, Ont.; Arthur E. Atwood, Somerville, Mass.; John D. Bell, Port Elgin, Ont.; Wm. D. Brand, Forrest, Ont.; Charles E. S. Brind, Stourbridge, England; Lawrence Bailey, Rosemont, Ont.; Samuel Caldbick, Brussels, Ont.; George H. Cranston, Attwood, Ont.; William R. Clark, Pettisville, Ohio; E. T. Cunningham, Colbeck, Ont.; Robert B. Coutts, Seattle, Wash.; Harlo R. Clark, Brookfield, N. Y.; J. G. Cruikshank, Deloraine, Man.; William Henry Corey, St. Albans, Vermont; Elwes E. Cary, Orlando, Florida; J. L. Devereau, Waterbury, Conn.; Lawrence T. Dunn, Providence, R. I.; George H. Davidson, Grand Forks, North Dakota; James Dixon, West Liberty, W. Va.; Orvill A. Delong, Florence, Ont.; James Elmer Ellis, Rockport, Ill.; George T. Elliott, Delhi, N. Y.; William E. Fairbanks, Lewiston, Maine; Carl Wallace Fisher, Cabot, Vermont; Thomas I. Fletcher, Ashland, Neb.; P. LeClerc Gauntt, Lumberton, N. J.; Benjamin W. Groff, Massillon, Ohio; George W. Higginson, Hawkesburg, Ont.; John P. Howland, Taunton, Mass.; Walter G. Huyett, Wernersville, Pa.; Fred. M. Hayward, Deansboro, N. Y.; G. Philip Hayter, London, England; George T. Irons, Abilene, Texas; Andrew R. Jordan, Dutton, Ont.; Thorfin Lambrechts, Montevideo, Minn.; Edward Henry Lawley, Brandon, Man.; John S. McIntyre, Sandhill, Ont.; Duncan McKenzie, Teeswater, Ont.; Alexander McGregor, Poland, Maine; Archibald D. McLachlan, Crampton, Ont.; John A. McDonald, Chicago, Ill.; Roderick McDonald, Rosshire, Scotland; G. W. Mackie, Summerside, P. E. I.; Hamlet Moore, Boston, Mass.; Frank J. Neiman, Marshalltown, Iowa; Ion Watson Parks, Burlington, Vermont; John S. Pollard, Ashton, R. I.; Burton W. Powell, Stockdale, Ont.; Horace Panet, Winnipeg, Man.; Louis Pauquette, St. Thomas, Ont.; John Albert Raleigh, Newcastle, Jamaica, W. I.; Thomas Rowland, Toronto, Ont.; Bertsch Royer, Birnamwood, Wis.; J. W. Rutledge, Portage la Prairie, Man.; Edgar Burke Shaw, Summerhill, Ill.; John Short, Grand Valley, Ont.; Harry W. Stedman, Springfield, Mass.; James E. Sexton, Worcester, Mass.; Andreas I. Sorensen, Modesto, Cal.; Edwin R. Stockwell, East Wilson, N. Y.; John Pront Straughan, Jewett Centre, N. Y.; Charles H. A. Stevenson, Carman, Man.; Thomas Sims, Willow City, N. Dak.; James T. Shannon, Lexington, Ky.; Samuel Shepard Treadwell, Brooklyn, N. Y.; Albert G. Van Tine, Mill Grove, N. Y.; Alfred C. Walker, Chichester, England; William M. Wilson, Hartstown, Pa.; John Mason Young, Rowland, Man.

Prizes Awarded.

Disease and Treatment: Seniors—C. W. Fisher, 1st prize, silver medal; J. T. Shannon, 2d prize; J. S. Pollard, P. LeClerc Gauntt, A. C. Walker,

3d prize, equal. Honors—A. E. Atwood, W. D. Brand, C. E. S. Brind, L. Bailey, S. Caldbick, H. R. Clark, R. B. Coutts, L. T. Dunn, G. H. Davidson, T. J. Fairbanks, G. P. Hayter, G. T. Irons, T. Lambrechts, E. H. Lawley, Roderick McDonald, D. McKenzie, A. McGregor, A. D. McLachlan, J. A. Macdonald, Hamlet Moore, J. W. Parks, J. A. Raleigh, B. Royer, J. W. Rutledge, E. B. Shaw, E. R. Stockwell, J. P. Straughan, C. H. A. Stevenson, S. S. Treadwell.

Materia Medica: Seniors—L. Bailey, 1st prize; J. T. Shannon, 2d prize; C. W. Fisher, 3d prize. Honors—H. R. Clark, J. L. Devereau, W. G. Huyett, T. Lambrechts, R. McDonald, Hamlet Moore, J. S. Pollard, J. A. Raleigh, J. M. Young.

Chemistry: Seniors—R. McDonald, 1st prize; L. T. Dunn, 2d prize; C. W. Fisher, 3d prize. Honors—L. Bailey, S. Caldbick, James Dixon, J. L. Devereau, G. H. Davidson, E. H. Lawley, Hamlet Moore, D. McKenzie, B. Royer, T. Rowland, C. H. Stevenson, E. R. Stockwell, J. T. Shannon.

Pathology: Seniors—G. T. Irons, J. T. Shannon, 1st prize, equal; C. W. Fisher, 3d prize. Honors—D. Allen, A. E. Atwood, L. Bailey, H. K. Clark, R. B. Coutts, L. Dunn, J. Devereau, James Dixon, G. H. Davidson, Cary E. Elwes, P. L. Gauntt, G. P. Hayter, G. W. Higginson, W. E. Huyett, T. Lambrechts, C. H. Lawley, D. McKenzie, Hamlet Moore, A. D. McLachlan, R. McDonald, J. McIntyre, A. McGregor, C. Owen, J. S. Pollard, J. A. Raleigh, J. W. Rutledge, T. Sims, J. L. Short, H. W. Stedman, A. Sorensen, E. R. Stockwell, S. S. Treadwell, A. C. Walker.

Physiology: Seniors—C. W. Fisher, 1st prize; Roderick McDonald, 2d prize; James T. Shannon, 3d prize. Honors—L. Bailey, G. T. Irons, T. Lambrechts, A. McGregor, D. McKenzie, J. A. Raleigh, J. W. Rutledge, A. C. Walker.

Anatomy: Seniors—C. W. Fisher, 1st prize; G. T. Irons, 2d prize; E. H. Lawley, 3d prize. Honors—D. Allen, W. L. Adams, W. J. Ackerman, L. Bailey, W. D. Brand, S. Caldbick, H. R. Clark, R. B. Coutts, J. L. Devereau, G. H. Davidson, L. T. Dunn, T. Lambrechts, R. MacDonald, D. McKenzie, A. McGregor, A. D. McLachlan, H. Moore, J. S. Pollard, B. Royer, J. W. Rutledge, E. B. Shaw, T. Sims, E. R. Stockwell, S. S. Treadwell, A. C. Walker.

Entozoa: Seniors—Prize, Lawrence Bailey. Honors—A. E. Atwood, W. J. Ackerman, W. D. Brand, E. T. Cunningham, H. R. Clark, A. Cromwell, W. A. Campbell, S. Caldbick, L. T. Dunn, G. H. Davidson, J. Dixon, J. L. Devereau, J. E. Ellis, C. W. Fisher, G. T. Irons, A. Jordan, E. H. Lawley, R. MacDonald, A. D. McLachlan, D. McKenzie, A. McGregor, J. S. McIntyre, H. Moore, J. S. Pollard, T. Rowland, J. A. Raleigh, J. W. Rutledge, J. T. Shannon, E. B. Shaw, J. E. Sexton, E. R. Stockwell, T. Sims, A. J. Sorensen, S. S. Treadwell, A. Walker, A. Young.

Dissected Specimens: Seniors—S. S. Treadwell, gold medal, given by the Toronto Industrial Exhibition Association; R. MacDonald, 2d prize, \$20; J. A. Raleigh, 3d prize, \$10; W. M. Wilson, 4th prize; J. W. Parks, 5th prize; J. P. Straughan, 6th prize.

Best General Examination: C. W. Fisher, gold medal, given by the Ontario Veterinary Association. Honors—L. Bailey, G. T. Irons, P. L. Gauntt, T. Lambrechts, J. S. Pollard, E. Stockwell, J. T. Shannon.

Primary Examination. Anatomy: Seniors—Wm. A. Campbell, Alex. J.

Cromwell, John Hewins, Robert Lawson, Cranston Owens, Harry P. Reed, Earl B. Truitt.

Materia Medica: Alex. J. Cromwell, John Hewins, Andrew H. Krull, Donald H. McKay, Wm. A. Campbell.

Disease and Treatment: Juniors—W. M. Goff, 1st prize; H. N. MacNeill, 2d prize; J. McDougall, V. J. Andre, 3d prize, equal. Honors—H. W. Carley-Baker, R. Cochran, J. Corrigan, C. F. Frey, W. J. Guilford, G. Jerome, F. C. Jones, T. B. Judson, T. J. Kirwan, James P. McVicar, A. L. Moore, M. O'Donnell, J. P. Oliveiler, H. J. Pugsley, J. W. Purdy, H. O. Ramsay, A. J. Roll, W. L. Rundle, J. Russell, J. L. Shorey, W. A. Sproule, J. M. Young.

Anatomy: Juniors—J. M. Young, 1st prize; Henry N. MacNeill, W. L. Rundle, 2d prize, equal; J. T. Oliweiler, 3d prize. Honors—V. J. Andre, H. W. Carley-Baker, R. Cochran, J. Corrigan, W. M. Goff, G. Jerome, F. C. Jones, L. B. Judson, J. McDougall, A. L. Moore, M. O'Donnell, H. J. Pugsley, J. W. Purdy, Howard Ramsay, A. J. Roll, J. L. Shorey, W. A. Sproule.

Physiology: Juniors—H. N. MacNeill, 1st prize; H. J. Pugsley, 2d prize; George Jerome, 3d prize. Honors—V. J. Andre, John Corrigan, H. W. Carley-Baker, Wesley M. Goff, F. C. Jones, A. Moore, J. F. Oliveiler, J. W. Purdy, W. L. Rundle, H. Ramsay, W. A. Sproule, J. M. Young.

Chemistry: Juniors—A. L. Moore, 1st prize; George Jerome, 2d prize; W. M. Goff, 3d prize. Honors—V. J. Andre, John Corrigan, W. J. Guilford, F. C. Jones, H. J. Pugsley.

Practical Microscopy and Bacteriology: Juniors—Wesley M. Goff, 1st prize; James M. Young, 2d prize; H. J. Pugsley, 3d prize. Honors—V. J. Andre, H. W. Carley-Baker, John Corrigan, Wm. J. Guilford, F. C. Jones, George Jerome, H. N. MacNeill, A. L. Moore, J. F. Oliweiler, J. W. Purdy, W. L. Rundle, J. L. Shorey, W. R. Sproule.

VETERINARY DEPARTMENT, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

On Wednesday, June 8, 1898, in the American Academy of Music, Philadelphia, Pa., the exercises incident to the graduation of the class of 1898 of the Department of Veterinary Medicine, University of Pennsylvania, were held in conjunction with the general commencement exercises of the University.

The graduates of all the departments, led by the University Band, marched from the University to the Academy of Music, arriving there at 10.30 o'clock. The immense building was filled to overflowing with friends of the students and faculties, all eager to witness the ceremonies which should end the student-life of so many hundreds of young men and women.

The highly entertaining programme was begun by the invocation by Rev. Adolph Spaeth, D.D., LL.D. Next was a hymn, "Our Father in Heaven." This was followed by the Commencement Address, which was delivered by Hon. John B. McPherson. Then followed the singing of the University hymn, "Hail! Pennsylvania." Provost Harrison then conferred the degrees upon all the graduates of the various departments of the University. This was an impressive ceremony. Next was the announce-

ment of honors and prizes, followed by presentation of a portrait of the late Dr. Theodore G. Wormley, who for twenty years held the professorship of chemistry and toxicology. The exercises closed by a spirited singing of "The Star-Spangled Banner," and benediction by Rev. Dr. Spaeth.

Music was rendered by the Municipal Band. The degree of Doctor Veterinariae Medicinæ was conferred upon the following: Stephen Landon Blount, Texas; Guy Edward Chesley, New Hampshire; Albert Edward Cunningham, Nova Scotia; Lewis Debbie Horner, New Jersey; Joseph Johnson, Jr., Pennsylvania; Philip Kerr Jones, Pennsylvania; John Francis McAnulty, Pennsylvania; Stewart White McClure, Pennsylvania; John Henry McNeall, Illinois; Joseph Neilson Megary, Jr., Maryland; John Jacob Repp, Pennsylvania; Ernest Philip Spaeth, Pennsylvania; John Earnest Spindler, New York; Herman Henry Weinberg, Pennsylvania.

Dr. Leonard Pearson, Dean of the Department of Veterinary Medicine, announced the following prizes: The J. B. Lippincott Prize of one hundred dollars to the member of the graduating class who, in the three years spent in the Department of Veterinary Medicine, attains the highest general average in examinations, to John Jacob Repp.

The prize of a book, entitled *Feeds and Feeding*, awarded to the member of the graduating class who passes the best examination in zoötechnics, to John Jacob Repp.

The prize of an écraseur, offered by a friend of the department to the member of the second-year class who passes the best examination in veterinary anatomy, to John Philip Miller.

This is the first year during which Dr. Leonard Pearson has occupied the important position of Dean of the Department of Veterinary Medicine, but even in so short a time rapid strides have been made in advancing the already high standing of the school. Numerous improvements have been made in the buildings and grounds. Through the efforts of Dr. Pearson as State Veterinarian of Pennsylvania and Secretary of the State Livestock Sanitary Board, that Board has established at the Veterinary Department an excellent Laboratory of Bacteriology and Pathology and a building especially built and designed for the purpose of carrying forward experiments relative to various infectious diseases to which domestic animals are subject. These facilities are all at the service of the students of the department, and the veterinarians of Pennsylvania form an adjunct to the State veterinary establishment which is of inestimable value. The course of study has been augmented and revised so as to conform to the latest teachings in the various phases of medical science. A valuable acquisition to the teaching faculty has been made in the appointment of Dr. W. Horace Hoskins as lecturer in veterinary jurisprudence and ethics and business methods.

At eight o'clock in the evening of commencement day the annual banquet of the Alumni Association of the Department of Veterinary Medicine was held in the University restaurant. The committee in charge, composed of Drs. William G. Shaw, C. J. Marshall, and A. F. Schreiber, certainly had the best interests of their brother-alumni in view, as the menu will testify: Salt oysters, sliced tomatoes, queen olives, salted peanuts, consommé de volaille, planked blue-fish au beurre, pomme Julienne, barbecued spring chicken, gibleet sauce, waffles, new potatoes, new asparagus, new peas, crab salad, strawberries and ice cream, assorted fancy cakes, fromage de brie, Bent's biscuit, café noir. It is needless to say that after such a sumpt-

tuous repast all were in a responsive mood when the toastmaster, Dr. John W. Adams, professor of surgery, took charge of the ceremonies. Dr. Adams is a toastmaster of rare ability, and succeeded in calling forth happy responses from the following gentlemen: "The Ideal Veterinarian," Dr. John Marshall; "The Future of Veterinary Science," Dr. Leonard Pearson; "Canine Practice," Dr. Alexander Glass; "Veterinary Ethics," Dr. W. Horace Hoskins, "The Success of a City Veterinarian," Dr. S. J. J. Harger; "Advantages of a Course in Medicine to a Veterinarian," Dr. Conrow; "Country Practice," Dr. W. H. Ridge; "The Veterinarian as a Society Leader," Dr. Robert Formad; "The Use and Abuse of the Bottle," Dr. M. E. Conard; "Reminiscences," Dr. A. F. Schreiber; "Taxidermy and Other Skin Games," Dr. H. D. Martein; "The Veterinarian as a Therapeutist," Dr. E. S. Muir; "The Temptations of a Resident," Dr. W. G. Shaw; "What the Alumni Could Do?" Dr. John J. Repp; "Veterinary Service in the Army," Dr. John P. Turner. Among those present whose names are not given above were Drs. Harry Walter, H. W. Turner, B. F. Senseman, J. M. Mccray, F. H. Mackie, Leroy M. Land, J. Stewart Lacock; also the class of 1898 was present in a body by invitation of the Association, and its members were formally welcomed into membership.

The banquet was a pronounced success in every particular, and everyone felt that another tie had bound him still closer to his alma mater. The alumni, if each of them does his duty, constitute one of the most potent factors in making the success of the school from which they graduated. By making the schools better we raise the standard of the profession. To have a good school it is requisite to have a considerable number of students. No force will avail so much in securing students as the determined effort of the individual alumnus. It is the duty of each one to induce young men who are well qualified to become students in the Department of Veterinary Medicine of the University. Nothing will count for so much as such individual effort.

NEW YORK STATE VETERINARY COLLEGE.

The commencement exercises of the New York State Veterinary College were held in common with those of other departments of Cornell University at the University Armory, June 16th at 10 A.M., and the Degree of Doctor of Veterinary Medicine conferred by the President of the University upon the following candidates. Henry W. Dustan, Morristown, N. J.; Albert B. Kelly, Albany, N. Y.; Henry Lehrman, Montclair, N. J.; Ray J. Stanclift, Derby, N. Y.

The Horace K. White prize for meritorious work was awarded to R. J. Stanclift.

The graduating class, like that of 1897, was necessarily made up of graduates from other colleges or of students who had taken a part of their course at other institutions. In 1899 the college will begin to graduate students who have taken their complete course in this institution.

The number of students for 1897-1898, as compared with 1896-1897, shows an increase of 55 per cent., while the number of animals presented at the clinic has increased by 100 per cent.

The work accomplished during the year has been highly gratifying alike to faculty and students.

The graduating class of the New York State Veterinary College num-

bered four of those pursuing their course of study at this institution. The prospects for the school for next year seem to be promising to those engaged in its direction and management. The library of the college has recently been added to by obtaining the entire library of the late John Busted, of New York City, containing many valuable works. The museum has also been added to by a very valuable collection of pathological preparations from the same source. A number of valuable pathological specimens were recently obtained by gift from Dr. W. L. Zuill, of Philadelphia.

HARVARD UNIVERSITY, SCHOOL OF VETERINARY MEDICINE.

At the commencement exercises of the Veterinary Department, Harvard University, held in connection with the commencement exercises of the other departments of this University, in June, the following gentlemen received the degree of M.D.V.: Ralph Wilson Balkam, Hyde Park, Mass.; Chester Lawrence Blakely, Medford, Mass.; Joseph Horace Dennen, Somerville, Mass.; Leonard Joseph Loewe, Boston, Mass.; Daniel Stephen Joseph Murphy, Cork, Ireland.; Lawrence Locke Peirce, Arlington Heights, Mass.; John William Robinson, Natick, Mass.; William Henry Simpson, Dorchester, Mass.; Windsor Reed Smith, W. Brookfield, Mass.; and Harry Albert Tuttle, Hyde Park, Mass.

PERSONALS.

Among the veterinarians at the recent stallion show, West Chester, Pa., were to be noted: Drs. James B. Rayner, Charles F. Oat, West Chester; Harry P. Turner, Lahaska; J. C. Bartholomew, Berwyn; W. L. Rhoads, Lansdowne; and W. P. Phipps, Lionville.

Veterinarian S. G. Hendren, formerly of York, Pa., is now located at Indianapolis, Ind.

Dr. E. S. Muir, of Philadelphia, Pa., is a devotee of the wheel, and wears the laurels of successful century runs.

Dr. J. C. McNeil, of Pittsburg, Pa., is a member of the city school-board and president of the board of directors of his district, which is said to be the most progressive and advanced of the Smoky City.

Dr. Farrell, of Chicago, has been inspecting horses for the army during the latter part of May and June. It is said that as many as fifty-two head of horses were passed in fifty-nine minutes.

Dr. J. J. Vandervee, of Cornell, Ill., fills the rôle of police magistrate, notary public, and real-estate agent in his bailiwick.

Dr. W. C. McMackin, of Raleigh, N. C., contributed to the Department at Washington three balls of stiff hairs of mature crimson clover taken from the intestines of horses.

Veterinarian G. Howard Davidson, of First Regiment, Squadron A, of New York State, was a recent visitor to Kentucky for the purchase of horses suitable for army service of his troop.

Drs. Harry Walter, of Wilkesbarre, and J. C. McNeil, of Pittsburgh, Pa., were visitors to Philadelphia in June.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, was a visitor to Boston in June.

Dr. T. M. Owen, graduate of the Ontario Veterinary College, who has recently been practising in the Nutmeg State, has located at Gaithersburg, Md.

Drs. R. A. Dunn, of Titusville, and J. T. Ferley, graduates of the class of 1892 of the American Veterinary College, were visitors to the JOURNAL office in June while renewing their fraternal relations.

Dr. Donald McIntosh, of Urbana, is a contributor to the annual publication of the Agricultural Club of the University of Illinois, entitled the *Illinois Agriculturist*.

Dr. A. S. Alexander, of Evanston, has an article in the June 1st number of the *Breeders' Gazette* on the so-called "Cornstalk Disease."

Dr. E. H. Brown, graduate of McKillip Veterinary College, is located at Boise, Idaho, a State that can boast of but few qualified members of the profession.

Dr. W. G. Hollingsworth, of Utica, N. Y., reports a second case of purpura hemorrhagica recovering under the antistreptococcus-serum treatment.

Dr. M. O'Connell, of Holyoke, Mass., has been seriously ill for the past three months, but we are glad to report his convalescence.

Dr. A. B. Kelly, graduate of the class of 1898, New York State Veterinary College, has located at Cohoes, N. Y.

Dr. E. Schirmer, of Washington, D. C., has gone to Tampa, Fla.

Drs. E. M. Massinger and Lewis Ralston, of Phoenixville, Pa., were visitors to the JOURNAL office in June.

Dr. A. T. Peters, of Lincoln, is a contributor to the annual report of the Nebraska Dairymen's Association.

Dr. A. W. Clement, of Baltimore, Md., was a visitor to Philadelphia in June.

Dr. J. P. Turner, late of Fort Myer, Va., was a visitor to West Chester, Philadelphia, and other Eastern cities in June.

Dr. W. P. Phipps, of Lionville, Pa., is the owner of the trotting stallion "Lord Middleton, by "Star Wilkes," and exhibited him at the recent stallion-show in West Chester.

Dr. A. N. Lushington, of Philadelphia, Pa., graduate of the University of Pennsylvania, Veterinary Department, left in June to assume the duties of instructor in the elementary principles of veterinary and sanitary sciences and hygiene at the Belmear Industrial School near Rock Castle, Va.

Dr. W. H. Bolyn, of Lincoln, Va., has been selected as veterinarian for the Upperville Colt-club of that State.

Dr. J. C. Bartholomew, of Berwyn, Pa., is an ardent admirer of the hackney. At the West Chester stallion show he exhibited "Norway," by "Cadet," and "Campfire," by "Wildfire," and "Llemer," a pure Arab stallion.

Dr. J. O. George, of Camden, N. J., has just been re-elected meat-inspector of that city.

Dr. J. J. Monahan, of Holyoke, Mass., was unfortunate enough in June to lose a valuable pocket-case of instruments.

Dr. C. H. Magill, of Philadelphia, was the consignor of a "Director" colt at McFarland's special sale of trotters and high-class horses in June.

Dr. Leonard Pearson spent the 4th of July at the farm of Dean Marshall, of the Medical Department of the University, in Berks County.

Dr. James M. Meecray, of Maple Shade, N. J., is much interested in the rearing of guinea-pigs, and has specimens of the several varieties in his pens.

Dr. Leonard Pearson, of Philadelphia, has been appointed by Governor Hastings a delegate to the Congress on Tuberculosis convening in Paris July 27 to August 2, 1898.

Oliver Warren, veterinary surgeon, of Victor, N. Y., died the latter part of June. He was a successful gelder in his day, and a great admirer, owner, trainer, and driver of trotting-horses.

Dr. W. B. Niles, of Ames, Ia., presented a paper on "Some of the Diseases of Pigs" before the Iowa Swine-breeders' Association in the latter part of June.

Dr. S. G. Hendren, formerly of York, Pa., recently of Indianapolis, Ind., and Dr. Thos. Castor, of Frankford, Philadelphia, have been granted furloughs by the Department of Agriculture and have entered the engineer corps of the regular army for service in the Hispano-American war.

Dr. Frank Winant, of Ellenville, N. Y., has entered the government service and gone forth prepared to battle for our nation.

Dr. J. W. Petty, of Winston, N. C., was on the sick-list for several weeks in April.

Dr. R. S. Huidekoper, of New York, was a visitor to Philadelphia in May.

Dr. Robert Ward, of Baltimore, has been appointed a member of the Maryland State Board of Examining Horseshoers.

The Governor of Maryland has made the following appointments upon the State Board of Veterinary Medical Examiners: Drs. A. W. Clement, W. H. Martenet, and H. A. Meisner, of Baltimore, F. H. Mackie, of Fair Hill, and R. V. Smith, Frederick City.

Drs. Albert Drinkwater, Leroy R. Webber, and J. C. McKenzie lectured to the horseshoers of Rochester the past winter.

Dr. Leonard Pearson addressed the Farmers' Institute at Huntingdon, Pa., and the annual meeting of the Pennsylvania Jersey Cattle-breeders' Association in March.

Dr. W. E. Weihe, of Scranton, Pa., made a Southern trip in the latter part of February.

Dr. W. H. Dalrymple, of Baton Rouge, has much of interest in a recent bulletin of the State work.

Dr. M. A. Piche, of Montreal, renders a strong protest against the present control and direction of the veterinary sanitary police measures of the Province of Quebec.

Dr. A. Smith, of Toronto, has been elected Vice-President of the Horse-breeders' Association of Canada.

POINTS.

Glanders continues to be somewhat prevalent in certain districts of Indiana, and is causing much uneasiness among stock-owners.

A prominent St. Louis horse-dealing firm advised its buyers recently to leave the long-haired thin stock alone. Pity they were ever bred, for they have about as little substance as a turnip and about as much courage as a turkey.

Lieutenant-Colonel Smith, Assistant Quartermaster of the United States Army, purchased nearly a million dollars worth of mules the last week in May. It is estimated that \$100,000 a day has been spent in these purchases since May 1st.

A noted New York veterinarian recently married a "sparrow," while a rising Philadelphia veterinarian recently tied himself up with a "bunch." Strange combinations in life are to be noted. What's in a name?

The *New York Medical Journal*, in an abstract from a foreign journal referring to the number of cases of persons treated at the Pasteur Institute at Odessa in 1895, numbering 1288; 284 of whom had been bitten by animals ascertained experimentally to be affected with rabies; 231 by animals recognized as rabietic by veterinary examination, and 663 by animals suspected to have rabies. Twenty-seven of the number bitten by animals shown to be rabietic had been bitten on the head and face. The creatures that had done the biting included 1 man, 1173 dogs, 43 cats, 2 horses, 16 wolves, and 3 hogs. Of the total number of persons treated five died of rabies.

The four hundred reindeer purchased by our Government arrived in New York safely, but with one loss while on shipboard. They were duly inspected by Dr. Hickman, of the port of New York, and sent on their journey to Puget Sound.

The Department of Agriculture is rapidly completing plans for the production of hog-cholera serum. The buildings and pens and preparation of the animals will soon enable the extensive experiments proposed to be undertaken.

The Canada Horse-breeders' Association will petition the coming Legislature of Ontario to establish an inspection for all horses standing for service in Ontario.

THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES.

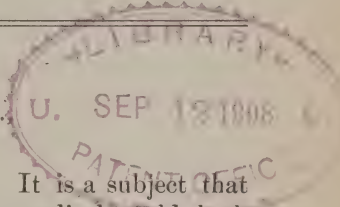
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No. 8.

IMMUNITY.¹

BY A. T. PETERS, D.V.M.,
LINCOLN, NEBRASKA.



THE title of my paper is "Immunity." It is a subject that has attracted a great deal of attention in the medical world, both abroad and in this country, since the time of that master of vaccination, Jenner, and that pioneer, Pasteur, who really demonstrated the power of immunity when he showed his results of vaccination against anthrax in 1881. Since then vaccination has been practised in various diseases with marked success. But it has been found that immunity may be produced not only by vaccination, but also by the sera-fluids, and this subject of serum-therapy has been uppermost in the minds of medical men since the discovery of Behring's diphtheritic and tetanus antitoxin. Both have been greatly modified in the technique of preparation, and there have been theories and theories advanced as to their relation to immunity. So I will endeavor to discuss immunity produced not only by vaccination, but also by the sera-fluids.

Immunity may be natural, hereditary, or acquired. It would be useless for me to go into minute details in regard to natural and inherited immunity, so we will give the most of our attention to acquired immunity, as that concerns us in combating contagious diseases.

Inherited Immunity. As an example of inherited immunity, I will refer you to the Algerian sheep. All who are acquainted with the literature of anthrax know that this sheep is immune from anthrax, and can be pastured on infected land that is extremely fatal to other species. This breed, we find, inherit their immunity.

¹ Read before the Nebraska Veterinary Medical Association.

Natural Immunity. To illustrate natural immunity I will repeat what experimenters in the laboratory have for a long time known, that field-mice are not susceptible to septicæmia. Another instance that is familiar to all veterinarians is that no case is recorded in the history of veterinary medicine in which the cow has contracted glanders.

Acquired Immunity. Acquired immunity may be effected by the recovery from an attack of a disease or by inoculation against subsequent attacks. But acquired immunity is not always effected in this way, as certain diseases are recurrent. For instance, one attack of malaria renders a person even more susceptible to a second attack. Consequently, inoculations in such cases cannot produce immunity. On the other hand, it has been clearly demonstrated in New York, and also in our own laboratory, that diphtheria convalescents carry the diphtheria-bacilli in the sputa or excreta with impunity. It has also been reported that cholera patients have passed the coma-bacillus for weeks after recovery.

In inoculating against diseases there are many things to influence susceptibility and immunity. Age appears to exert some influence, as young animals are more susceptible than older ones. This is especially true in the case of hog-cholera. For the last four years our records show that over 88 per cent. of the hogs that succumbed weighed from 50 to 150 pounds. This is also true with horses and influenza.

The strength of the virus is also an important factor. It is well, therefore, to know the strength of your virus and dose accurately, according to the size of the animal. For example, it would not do to inoculate first with the second vaccine of anthrax and omit the first, for you would certainly meet with disaster. The temperature also plays an important part. For instance, the normal temperature of the fowl is 107.3°. Consequently, the fowl is exempt from anthrax until the body-temperature is reduced by artificial means so that the germ can grow.

Heredity likewise exerts considerable influence in certain cases in the production of immunity. Duclert found in sheep-pox that animals found an immune mother possessed either relative or absolute immunity. To show the effect of an immune father on the offspring, Ehrlich made six experiments with an immune father and susceptible mother, with the result that not even a temporary immunity was transferred to the young. But even the mother does not always transmit immunity. We have made experiments along this same line. At conventions of swine-breeders the question is

often raised as to whether or not a litter of pigs would be susceptible to hog-cholera if the sow had had the cholera at the time of pregnancy. There seemed to be a difference of opinion among the stockmen, so it was decided by our department to buy a litter of pigs that were from a sow that went through an attack of the cholera at the time of pregnancy, and place them in infected herds where undoubted cholera existed. This was done, and in every case the pigs died. From this experiment, together with the statements of stockmen who have since observed the same, I think that the progeny of a mother immune against hog-cholera are not immune, nor do I think that they are in any way rendered less susceptible to the disease. In some diseases, as smallpox and measles, one attack gives the subject an immunity that may last him a lifetime. On the other hand, an attack of diphtheria or relapsing fever gives an acquired immunity that lasts only for a limited period, after which there is danger of a second attack. In still another type of disease no immunity whatever is produced. These diseases are tuberculosis, leprosy, and cancerous diseases, and although vaccination has been tried it was of no avail. Hospital patients treated with tuberculin seem to recover for a period of one or two years, after which time the disease breaks out with renewed vigor. So, to assure acquired immunity by vaccination, we must use cultures of those microbes which produce a large amount of toxin, and not those which produce no symptoms of poisoning when the pathological microbe is present.

Theories as to the Cause of Immunity. The duration and cause of immunity depend on factors of which we have no certain knowledge. The different investigators have expounded different theories. The most noted is the hypothesis of Metchnikoff's famous theory of phagocytosis. He says that the cells of the body, such as the phagocytes, have the power of destroying by digestion the microorganisms that invade the circulation, and thus protect the body from infection. If, on the other hand, the phagocytes are incapable of preventing the growth of the infectious organisms, the bacteria get the upper hand and the animal suffers fatal infection. Again, if the amoeboid cells succeed in warding off the attack, they habituate themselves to the action of the germs and are thus able to resist this germ as long as the immunity lasts, the time varying, as has been shown, in different diseases.

Büchner has put some restrictions on this theory since he has shown that after the leucocytes are destroyed by freezing the bactericidal power of the blood still remains. He later concludes

that although leucocytes do furnish a germicidal power they do not do so as a rule by actual digestion of the germ. Other observers have since noted that the bactericidal power of the blood is contained in the leucocytes.

Pasteur explained the phenomenon in this way: The pathological microorganism of each specific disease finds a special pabulum on which to live, and so soon as this becomes used up it can no longer exist. Hence the animal remained immune until this pabulum was renewed in the system.

Chauveau explained the matter from a chemical standpoint. He suggested that acquired immunity was due to a waste-product of the germ, which remained in the system, and in which the germ itself could not live. This is illustrated by the yeast-plant, which in growing produces alcohol, and which, in turn, prohibits further growth of the germ.

All these theories have been vigorously attacked by Behring, who has done so much in serum-therapy in the last seven years. His theory, which has been quite generally accepted, is that the host elaborates a specific antitoxic substance which chemically neutralizes or antagonizes specific toxins as acids neutralize bases.

The latest theory at our command is the so-called "granular theory," that there are present in the blood free granules derived from the leucocytes that destroy the pathogenic germ. This has just been recently advanced in a paper read before the Johns Hopkins Hospital Medical Society, October 18, 1897, by Drs. Stokes and Wegefarth. They conclude by advancing the following theory: "The bactericidal power of the leucocytes of the blood, and of the serum of man and many animals, is due to the presence of specific granules, especially the eosinophilic and neutrophilic. When called upon to resist the action of invading bacteria the granular leucocytes can give up their granules to the surrounding fluids or tissues. Not only does this enable us to understand how apparently cell-free fluids can destroy bacteria, but the production of the alexin by the leucocytes also affords a better explanation of the hyperleucocytosis of infection so strongly urged by Metchnikoff, and by no means disproves the supposition that the leucocytes can take up bacteria either while alive or after being destroyed by means of the germicidal granules."

But no matter how much these theories differ and antagonize each other, they all agree in one thing—that the germicidal power of the blood lies somewhere in the serum. In accordance with this fact, the investigations and discoveries of Behring have shown

that if the toxin of a pathological organism be injected in proper quantities for a sufficient length of time into the body of one of the higher animals, the blood-serum of this animal acquires specific antitoxic properties; that is, a given quantity of this serum injected into another susceptible animal would render it immune. And it is by this means that the medical profession is scoring one of the greatest triumphs in modern medicine.

I will now endeavor to discuss the more important diseases in which immunity may be acquired by vaccination or by the introduction of blood-serum from immune animals.

Rabies. Pasteur's treatment of rabies is undoubtedly known to all of you. His cure consisted in killing rabbits suffering from rabies and injecting an emulsion of the old and desiccated cord into the system of the animal he wished to immunize. This first injection was followed by repeated injections of fresher and fresher cords until absolutely fresh and virulent cords could be injected with no effect. Since the time of this discovery thousands of patients have been treated by this method, and institutes for this purpose have sprung up all over the world.

Anthrax. Pasteur found that by exposing the anthrax-bacillus to abnormal heat it gradually lost its virulence. Furthermore, he noted that sheep inoculated first with a bacillus of little virulence, and secondly with one of greater virulence, were protected against subsequent inoculation of a virulent culture that proved fatal in an animal not so protected. A public test of this experiment was made, in which twenty-five sheep were vaccinated by this method; the other twenty-five were left unvaccinated, and all were publicly inoculated with a virulent culture of the anthrax-bacillus. The result was a perfect success. All the unvaccinated animals died of anthrax, the vaccinated ones were not even ill. Since 1881 vaccination for anthrax has been practised all over the world, and "in France alone, during the twelve years succeeding its introduction, the saving has been estimated at about 300,000 sheep and over 20,000 head of cattle."

Black-leg. Black-leg was for a long time thought to be identical with anthrax, but through the labors of Arloing, Cornevin, and Thomas, a specific germ for this disease has been isolated. I do not think it wise to take up too much time in the discussion of the efficiency of vaccination in this disease; but I would like to emphasize the fact that all veterinarians should thoroughly acquaint themselves with the method, what has been done here and abroad toward decreasing the annual loss, which is greater than is

generally thought. If the veterinarian will do this, and compare the results with those obtained by using the old remedies, he will stick to vaccination and become a useful man in the community where black-leg exists.

Pleuro-pneumonia. Vaccination is practised in pleuro-pneumonia in Europe, where the disease is known to exist. I quote from an article by Ecrivain in the *Veterinary Journal*, vol. xlii., No. 251: "It has not yet been fully determined how long the immunity lasts, but still, if it carries over the outbreak it would save the life of many a healthy animal. The virus is taken from the interlobular connective tissue of the lung in the first stage of a mild attack, when it will be loaded with a semifluid exudate. The fluid is collected, filtered, and put into sterilized tubes which are afterward sealed by the blowpipe. The tip of the tail is the part selected, and scarification is quite sufficient on the under surface, one drop of the filtrate being quite sufficient for protection. There has been some argument whether inoculation produces the same disease or not, but whatever it produces it is a great satisfaction to know that it produces immunity."

Variola. Variola runs a mild course in cattle and renders the animal immune. Persons milking cows with this disease may become infected through an abrasion, and thus become immune against a subsequent attack of this disease, as well as against human smallpox.

Tetanus. The serum-treatment of tetanus has interested the veterinary profession for the last seven years. It was hoped for a time that the antitoxic serum would be effective as a curative agent, but the recent experiments and data at hand have clearly demonstrated that when the symptoms of clonic spasms have set in the serum has only a limited curative effect. Professor Nocard states that it is a good prophylactic. It should be used, therefore, in localities where tetanus is known to exist, in cases where valuable horses received deep-seated punctures that have a tendency to heal on the outside, as the bacillus is anaërobic, so that wounds with good drainage are not so liable to infection.

Rinderpest. Germany is especially fortunate in having strict sanitary regulation in combating rinderpest, but this still runs unchecked to a great extent in Africa, Russia, and certain parts of Austria. Recently the English Government has secured the services of Dr. Koch to investigate this disease in Africa. The report of his work is more or less familiar to all of you, who have, no doubt, watched it with unbounding interest. At first the

treatment consisted in the injection of serum from animals that had recovered, but those animals that received the serum showed only a limited protective power. So the next step was to try vaccination. This was done as follows: The bile was taken from an animal immediately after death, so that no putrefying germs were present, and placed in a sterilized flask and treated with glycerin. Animals treated with this experimentally could, after certain days, receive virulent blood under the skin with impunity, while the control-animals died. It has been shown that the protective power lasts three months in cases where glycerinated bile was injected. But even if the immunity were absolute only for this short period, it would be practical to inoculate the animals every three months if the disease is suspected in the neighborhood. The glycerinated bile is used because the disease cannot be spread by its use, and, secondly, great economy is effected by the use of glycerin, and, thirdly, the mixture will keep. Pure bile is undoubtedly the most powerful, but even that is not so powerful in producing immunity as the disease itself, from which immunity lasts in Russia about five years. The French experts claim that by using 100 c.c. of serum to a dose an immunity lasting two months will result.

Drs. Turner and Kolle, who have continued the experiments begun by Dr. Koch, have experimented with serum and with defibrinated blood, the action of both being found precisely similar. They conclude that infection must be assured of as definite and of as severe a character as possible, and at the same time administer the serum in such a dose as to insure the safety of the animal. This is done by injecting 1 c.c. of virulent blood on one side of the animal, and immediately after 5, 10, 20 c.c. of the serum on the other side. The animal suffers from a modified form of the disease, showing all the usual symptoms, and is salted.

Texas fever. The recent investigations in Texas fever in this country and in Australia are all fresh in your memories, as the cause of this disease has only recently been agreed upon. Dr. F. L. Kilborne deserves a great deal of credit, as he pointed out in 1889 and 1890 that the tick was the cause of the spread of the disease. It took some time before the stockmen and scientists would believe that the innocent-looking tick was at the bottom of it all. Many of you will recall men saying, "No tick, no Texas fever," and you will also recall what a warm reception was tendered the gentleman who made such a remark. But, however fishy it sounded then, I think the work of the Missouri Experiment

Station has now confirmed the tick-theory " beyond the shadow of a doubt. I mention this disease in connection with immunity, because Dr. Connaway, of the Missouri Station, has performed experiments in which serum was taken from naturally immune Southern cattle and injected into susceptible Northern cattle with the view of producing immunity. One animal was immunized in this way and withstood the disease when infected with the tick. The various experiments made along this line do not as yet give sufficient evidence to justify one in stating that the serum will prove an absolute prevention, but the reports are encouraging, to say the least, so that we may hope for a great revelation in the cattle-industry of the South.

Hog-cholera. Probably the disease most interesting to stockmen is hog-cholera. Vaccination against this disease has been in vogue for some years, but recently experiments have been made with the serum-treatment. Dr. Lorenz, of Darmstadt, Germany, has experimented with serum taken from immune rabbits and pigs, which proved successful, and his method was bought by the Government of Prussia for the purpose of making their own serum and establishing stations for that purpose all over the country. These experiments have been watched with marked interest by all who are familiar with the foreign literature. It has been recently announced that he has secured a chemical from the serum which, he claims, contains the protective power. Dr. Paul Toepper, B. F. W., No. 44, 97, announces that he has inoculated animals with this protective chemical and has not had very good success with it.

The results of experiments with serum from animals refractory to the disease, carried on at the Nebraska Experiment Station in 1896, were reported before this body last year. These experiments have been continued through 1897, about 2000 doses having been sent out. At the present time I cannot state the exact number treated and the results of the same, as the reports are not yet at hand, but the reports we have received so far are very encouraging over the previous year's results. We have given a virulent culture in connection with the serum, and have demonstrated that by this method we could not give the disease so that the slightest symptoms were shown. We have also treated piggy sows by this method without producing abortion or any deleterious effects. By this combination of the toxin and the serum we have succeeded in lengthening the period of immunity, which accounts for the better results.

In our study of the efficiency of serum we have in the past year learned many new things, one of the most important of which is the fact concerning filtered serum. Our laboratory and field experiments showed that serum lost some of its protective power by filtering it through a porcelain bougie. We have also shown, to our own satisfaction, at least, that serum alone has a much more limited power of immunity than has serum in combination with virulent blood.

We have made only a few experiments with dried serum, and they were laboratory experiments on rabbits. But those that have used the dried diphtheritic serum claim that it is unreliable. The principal objection to it from a laboratory standpoint is that it is not readily soluble in water, and this fact alone, I think, would condemn its universal use.

We are watching with interest the experiments of a German investigator, who is trying to make a more concentrated serum, and thus lessen the size of the dose. The idea is to get rid of the water that the serum contains by some means that will not injure the protective properties of the material. He has shown that by freezing the serum a darker portion settles to the bottom of the flask. This it is found is the protective part, while the watery portion remains as a layer on top. We have observed this in our own laboratory, and have also noticed that some serum is very difficult to freeze, hence we conclude that it contains less water and is possibly a stronger serum.

I have tried to demonstrate to you the value of acquired immunity, and bring out some of the latest investigations that seem to speak so highly for the sera-fluids. I am ready to answer any questions that I can, and thank you for your attention.

THE INTERNAL CHICKEN-MITE (CYTODITES NUDUS VIZIOLI.)

By E. V. WILCOX,
MONTANA EXPERIMENT STATION.

SINCE 1858, when Gerlach studied this mite, it has received attention from various writers. It has been found in large numbers in the lungs, bronchial tubes, air-sacs, hollow bones, and upon the peritoneum of gallinaceous birds.

On several points opinions have varied to a considerable extent among the investigators of cytodites. At first the question of the relationship of the mite furnished some difficulty. It has not

been discovered how the mite is transmitted from fowl to fowl, or by what course it gets into the air-sacs and upon the peritoneum of the fowl. Furthermore, it is as yet by no means determined that cytodites is of great economic importance.

The latest paper on the subject which has come to the notice of the writer is by W. L. Williams, in the *American Veterinary Review* for April, 1898. The paper is so misleading in its general tendency, so exaggerated in its statements, and so inconsistent in its logic, that a brief criticism seems necessary.

The author states that he has found no record of the occurrence of the mite in any English-speaking country. Apparently he has not searched the literature very thoroughly. In Osborn's Bulletin on "Insects Affecting Domestic Animals," 1896, page 263, is a record of the occurrence of the mite in Baltimore, and, as Osborn adds, it had already been reported in Washington by Riley in the *American Naturalist*, vol. xvii. p. 422.

In regard to the economic importance of this mite, we believe that Williams' statements are much exaggerated. His work on the subject was done in Montana, and the author asserts that poultry-raising in Montana is "generally unprofitable," and that "the most serious and persistent malady of poultry was that due to the air-sac mite."

For a period of two years, in the same locality where Williams asserts that the poultry business is unprofitable on account of the great depredations of cytodites, we have taken every opportunity to kill and examine diseased fowls. We found cytodites in five of these fowls.

Moreover, on looking for the facts upon which Williams' statements are based, we find that he has not produced the slightest evidence of any injury or lesion which is due to the mites. The author acknowledges that his statements are mere conjectures, when he says: "Although I am unable to define the manner, I am nevertheless thoroughly convinced with Gerlach and Zundel that they do produce disease and death."

One author has tried experimental transmission of the mites into healthy fowls, both through the larynx and directly through the body-wall into the air-sacs. Of one such experiment the author relates: "No symptoms of disease developed, and after an interval of forty-seven days the chick was killed by bleeding, and the autopsy revealed a few cytodites in varying stages of development, including young mites and pregnant females. No trace of pathological lesions was discovered."

But, although all his experiments gave negative results, and although his autopsies revealed no lesions attributable to the mites, the author is "nevertheless thoroughly convinced" that the mites are, perhaps, the most destructive enemy of poultry. A scientific worker should be able to give a reason for the faith that is in him.

We are not prepared to assert that cytodites is harmless. We do maintain, however, that absolutely no evidence has been presented by Williams of any lesion or disease for which cytodites is responsible. He is, therefore, not justified in speaking of a "malady" or "disease in this connection." Williams speaks of "importing and cultivating the disease." He may have imported and cultivated mites, but, according to his own account, he was unable to produce any "disease" by the artificial transmission of the mites. Williams, moreover, is unable to define any disease caused by cytodites. There was no constant set of symptoms in his subjects, and there were absolutely no pathological lesions by which any disease could be described.

The article under discussion is one more example of the result of hastening into print on a supposedly new subject without considering the question whether or not one has any results to publish. No contribution to our knowledge of cytodites is made in the article. It is only a rehearsal of what has been written by Gerlach, Zurn, Zundel, Holzendorff, Vizioli, and especially Megnin. Indeed, the whole description of the genus and species, of the anatomical peculiarities, of the ovigerous female, male, octopod, larva, etc., occupying nearly five pages of the article, is simply an adaptation from Megnin. Megnin's order of treatment has been followed in detail, even in the order of words. A large part of the description is a tolerably close translation of Megnin, and should, according to our notion of scientific etiquette, have been included in quotation marks and accredited to Megnin.

It is rather amusing to find, at the end of Williams' translation of Megnin, the statement that "these observations, in connection with the anatomical characters of the parasite, fully support Megnin," etc. It would seem that one's own words, when translated into another language, may be used in "support" of the original statement.

We select, as an illustration, a passage from Megnin and a corresponding passage from Williams. The article by Megnin to which we refer is in the *Journal de l'Anatomie et de la Physiologie*, 1897, pp. 123-153. On page 151 we read: "Jeune femelle pubere semblable au male, s'en distinguant par l'absence complete

d'organes genitaux. C'est elle qui s'accouple avec le male, et la copulation se fait par l'anus, comme chez l'immense majorite des Acarieus."

Compare with this the following from page 14 of Williams' article: "The young non-gravid female is distinguished from the male by the absence of genitals, copulation being effected through the anus as in most acaria." Other parallel statements could be cited. On the page following the above quotation from Williams we find the statement that he has "failed to observe the copulatory process." Such curious inconsistency would not be possible if the whole article were written from personal observations. We should hesitate to describe a process which we had never seen.

The drawings accompanying the article are done by Mrs. Comstock, and are very accurate.

VETERINARY PREPARATORY EDUCATION.

BY ROBERT ROBB, V.S., M.D.,
LITTLETON, IOWA.

MUCH has been said of veterinary education in the various journals, but somehow the preparatory condition of the student has been omitted, so it is with pleasure that I relate some of the conditions necessary for the veterinary student before he attempts to enter college. It is not my intention to go into the details of the curriculum of the various colleges all over the land, but to point out some of the important factors that are so essential to students in after-life that go to make up a practitioner.

At the present day I may say there are so many practitioners who are so handicapped in their profession that it is embarrassing to witness them in their routine work. In the first place, students generally enter college with very little knowledge of their profession; they go unprepared, so to speak, thinking that by accomplishing anatomy, physiology, pathology, materia medica, practice, and bacteriology they have studied the veterinary art to perfection. I may say, without any contradiction, that the most important place for study is in the stable. Few have the early training as to the management of stock, including breeding, feeding, grooming, shoeing, and the general care of veterinary patients. A few go from the farm and other establishments prepared with the above knowlege, while others who have been unfortunate to such surroundings may in time attain a fair knowledge of the rudiments,

while a very large majority leave the bank, store, butchershop, unable to harness or hook up a horse, or even to know when one is properly hooked, not alone to speak of other things purporting to the general management of stock. Such men do not know the habits of healthy animals, studying only the habits of sick animals.

I must admit, with a few of my brethren, that it is hard for any practitioner to diagnose between health and disease if he is not accustomed to the habits and different traits that animals are prone to both in health and in sickness. This drawback among veterinarians in America has been one of the greatest curses in the country to damage the veterinary profession—men with diplomas, with fair education, while others well-learned have gone out as honest, conscientious practitioners only to stumble up against little things that they thought unnecessary for them to know or learn, having never been taught that the study and science of little things was the study of big things and the key to advancement. I am convinced that it is impossible for any man to be a successful practitioner unless he has been raised up to the profession or born in the stable, and, as age advances, having the necessary surroundings that will lead him to witness the different cases presented for examination both in health and in disease. By so doing he learns to diagnose lameness, habits, conformation, and disease. The ability to diagnose lameness in all its phases is only acquired by long experience and observation. This branch is one of the greatest obstacles that 80 per cent. fail in during their routine practice.

There is no question that some men are gifted with this talent ; in fact, it comes to them as natural as if going to their meals, while others could not tell whether it was in front or behind unless the animal was dead lame, and then they might fear it was in the cerebrum. If students that, by natural instinct, are adapted to the profession could begin early and start at the bottom—first in the stable, then the shoeing-shop, then the college—and accomplish the end they have in view, what a blessing it would be to the profession and dumb brutes. They could diagnose their cases accurately, give their prognosis without a doubt, and give better satisfaction to all concerned, and by so doing they would be able to advance veterinary science so that it would have a better foothold both in America and foreign countries.

At the present day students desire to become doctors in two or three years, experts in judging soundness, conformation, and lameness. I wonder where they expect to be taught all this. It is very hard to make a veterinarian out of a man unless he has

been born one, either in the stall or manger; "either place will do." This old adage proves itself every day in the eyes of those whose observations are the keenest.

In all the cities how many veterinarians can remove a shoe, dress a foot, and drive a shoe properly? Are there 5 per cent., or may I say 2 per cent.? Every practitioner should be able to do this independently of any person. By so doing he could be able to cope with the few who exist. One must feel like taking a back seat every time he has to send his patient to a shoeing-shop, not speaking of the inconvenience, to have a shoe removed or foot examined, or a shoe put on. How professional it would look, and at the same time advance the profession, if all the veterinarians could remove, dress, and clinch.

To recapitulate the course for veterinary students before entering college, I would say acquire the knowledge of diagnosing disease and lameness to a certain extent, spend two years in a thorough shoeing-establishment; then you will feel as if you are somebody, fit for your professional career, should you be able to pass your final examination.

A METHOD OF GENERATING AND ADMINISTERING MEDICATED STEAM TO HORSES.¹

BY R. C. MOORE, D.V.S.,
KANSAS CITY, MO.

I PRESUME every practising veterinarian is familiar with the advantages derived from inhalations of medicated steam in the treatment of acute and chronic inflammation of the air-passages.

The difficulty in thorough administration has caused me to pass it by many times when I am sure it would have done good service.

In May, 1896, I had serious trouble with some cases of contagious pleuro-pneumonia in horses (or I think, more properly speaking, necrotic pneumonia), several cases of which terminated fatally.

On visiting the stable one morning at that time I found two more cases that would soon go the same road. I determined to try treatment by medicated steam, but how was I to generate the steam and how to administer it to the horse effectually.

On looking around the place for some available method to accomplish this I found a small gasoline-stove; this could be made to supply the heat. Next I found an oil-can (capacity one gallon) fitted at the top to receive a cork; this would hold the water and

¹ Read before the Missouri Valley Veterinary Association, June 8, 1898.

medicine. So the task of generating the steam was mastered. Next I found a piece of garden-hose ten or twelve feet long, the end of which would fit into the socket in the top of the can; this would convey the steam from the boiler to the horse; but how should I get the horse to inhale it? A heavy canvas grain-bag was at hand; the open end of this secured around the horse's nose up nearly to the eyes, by means of a cord over his head and a hole in the bottom through which the end of the hose was inserted and tied, answered this purpose and completed the rig.

One quart of water, one ounce each of fl. ext. bell. and hydrastis cand. were placed in the can, and it placed over the lighted fire; when boiling the hose was attached and the steaming continued twenty-five to thirty minutes, and repeated once or twice daily, according to the urgency of the symptoms. After this we lost no more cases of this form of pneumonia, and it has proved equally serviceable in all throat and bronchial troubles.

I do not mean that everyone should adopt these particular appliances, for a properly-constructed rubber or ducking nose-bag would be far better, and a differently-constructed boiler with protruding spout, over which the hose could be slipped, would also be an improvement.

The advantage, it seems to me, in this method over a pail of hot water, scalded feed, etc., is the quantity of steam one can generate and the continuance of its administration. For by continuing it for one-half hour, where every bit of air the horse inhales is thoroughly charged with the medicine, it reaches every spot of diseased surface, and the several repeated applications must surely be of more service than one can possibly get from the old method.

THE VALUE AND USE OF THE THERMO-CAUTERY.¹

BY GEORGE P. TUCKER, V.S.,
LINCOLN, NEBRASKA.

THE thermo-cautery is one of the most valuable instruments that the veterinarian has, and while I do not wish to state that the hot iron is not a good instrument in the hands of an experienced operator, its great drawback is the impossibility of maintaining the proper temperature, and on this account should be discarded. The thermo-cautery overcomes this defect, besides being more easily handled, one hand being all that is required for its use. I speak of the improved form that carries the benzine in the handle.

¹ Read before the Nebraska Veterinary Medical Association.

Firing is the only radical cure for spavin, ringbone, sidebone, high splints, etc. It gives very good results in the treatment of chronic joint-lameness, and is of value in the treatment of muscular diseases. It has been used with gratifying results in the treatment of hogs suffering from partial loss of power in the hind parts, in which case good is effected by fairly deep firing along the spine and each side. Perhaps the best results from its use are seen in the treatment of sprains of ligaments and tendons. Many of our fast horses would be useless but for its curative effects. Probably no better example of its successful use can be given than in sprains or strains of the suspensory ligament in fast horses. That it works wonders in this case is beyond dispute.

There are various modes of procedure varying as to the ailment, but the best results are obtained by using the heated point boldly and as often over a given space as possible without causing a slonging of the parts between the punctures.

I have spoken only of the pointed instrument, as I have failed to get any great benefit from the so-called line-firing, and I am of the opinion that it is of little if any use compared with the process of puncturing, which gives better results and does not blemish.

In firing it is seldom necessary to throw a horse, as the use of the twitch and the holding up of the opposite leg is generally sufficient.

In bone-diseases the puncture should be as deep as possible. In muscular affections firing through the skin is better than blistering alone. In such cases there is no special object in deep firing, except in the affection of pigs, mentioned above, when deep firing produces better results. In firing ligaments or back-tendons the production of scar-tissue is the main object, binding all three together, if possible. This also necessitates deep firing. In this, as well as in bone-firing, little or no attention need be paid to the puncturing of bursæ, as it is often impossible to bring about the desired results without so doing. In such cases, however, the wound should be kept aseptic.

After being fired the animal should be allowed to rest as long as possible, two months at least. In the treatment of the wound caused by the punctures little is to be done except to apply a blister within twenty-four hours after firing. In bone-diseases the best blister is red iodide of mercury (1 : 4). One application is all that is necessary, and need not be washed off. In tendon- and ligament-firing the best blister to be applied is a mixture of red iodide of mercury and cantharides (one-half of each to four). It will be found necessary to wash this off in a few days.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. FRESTON HOSKINS,
PRINCETON, N. J.

CHEAP PRACTITIONERS. At the last session of the Lower Austrian Landtag complaints were repeatedly made that the fees demanded by veterinarians were too large in comparison with the value of the animals treated, and it was asserted that the ordinary peasant must therefore have more confidence in an empiric or farrier who was satisfied with a moderate compensation for his cure.

The following incident which really happened, and which is selected from four or five similar ones contained in the *Thierarztlisches Centralblatt*, will show that the empiric, or horse-doctor, is not always as cheap as he appears to be.

I was called to visit a sick cow by a cattlemaster living outside the city of Vienna. After treating the animal I was asked in regard to the fee. I demanded 50 kreutzers (less than 35 cents) for the visit, and the cattlemaster was not a little astonished. "If I had known that," said he, "I would have called you long ago. I always understood that regular veterinarians were very dear." Hereupon he related to me that the year before he had had a fine milch-cow, for which he had paid 120 florins (about \$50.00); the animal refused food, and after applying all the common remedies that he knew he called in the empiric, G. The latter decided that the animal had what he called "a nail," and would certainly die, probably very suddenly, and urged that the cow be speedily put to death. After the owner, in order thus to save a part of his loss, had consented to have it slaughtered, the empiric informed him in confidence that it was not advisable to sell the animal to a butcher in the city, for the meat-inspection was very strict there, and the official veterinarian, who did not know very much about the subject anyhow, would have the carcass buried. On the other hand, he knew of a country butcher who could use animals of this kind, and with him there would be nothing to fear. At the request of the owner the empiric finally produced a butcher who offered 25 florins for the animal supposedly sick, and finally bought it for 40 florins. While being driven off the animal began to eat the grass along the road with such avidity that the butcher could hardly get it to move, and the owner begged to be allowed

to keep it for at least one day longer. The empiric declared that the cow had only a false appetite and was eating from pain, and so the bargain stood. The empiric received from the owner 1 florin 50 kreutzers for his intervention, and the butcher, having no idea of killing the animal, sold it for 140 florins to another farmer in the neighborhood, where it is to be found to-day as one of his best milch-cows. And still people claim that the cheap and experienced empirics are necessary alongside of the qualified veterinarians.—*Thierärztliches Centralblatt*, March 1, 1898.

THE QUESTION OF THE EXTERMINATION OF CATTLE-TUBERCULOSIS. The continued spread of cattle-tuberculosis and its intimate causal relation to human tuberculosis makes its extermination one of the principal objects of contemporary legislation. District veterinarian Rudovsky was appointed to make a report on this subject at the Austrian Agrarian Assembly. Although we have not the full text of his report, yet we gather the gist of it from the *Wr. agricultural newspaper* of February 12th.

In the district of Muhren, under Rudovsky's direction, some 2314 cattle were inoculated with tuberculin; 39.84 per cent. proved to be tuberculous; 4.40 per cent. were suspected of it, and 55.75 per cent. were free from all tuberculous symptoms. Through these inoculations the well-known fact was confirmed that tuberculosis is much more widely spread in large herds than in smaller ones; that the frequency of tuberculosis increases with the age of the animal, and that acclimated species show the smallest percentage in tuberculous statistics. We heartily agree with Dr. Rudovsky when he emphasizes the necessity of immediately tackling the problem of extermination and confirms the great diagnostic value of tuberculin.

On the other hand, we cannot agree with several points in his report. He asserts that tuberculosis is not inherited from parents, and is present only "where the excrement containing bacilli of tuberculous men and animals is to be found." He overlooks the fact that the undeveloped foetus of tuberculous cows have, after slaughter, been repeatedly found to be tuberculous. Inheritance, therefore, plays some if not a very important rôle in the spread of the disease.

We agree, further, with him in the assertion that it will be possible to exterminate tuberculosis, just as other infectious diseases; but he stands in contradiction to the experience of everyone that recognizes the innumerable ways of infection and the immense spread of the disease, when he asserts that the extermination of

tuberculosis can be accomplished without great sacrifice on the part of the public treasury. This view is too sanguine, and leads the public to the erroneous opinion that the government is purposely avoiding the question of tuberculosis extermination, and is acting contrary to the most vital agricultural interests.

Veterinarians have on all occasions called attention to the great importance of tuberculin reaction, but at the same time they have always emphasized the fact that tuberculin-inoculation will never be practicable without very material aid from the State in the shape of remuneration for slaughtered animals. For this purpose a sum will be necessary in comparison with which the sum already expended in exterminating pulmonary consumption is nothing, and at the same time the agricultural population must likewise be willing to make some sacrifice, which is not the case to-day.

It is a matter of indifference to us if we are again characterized as volunteer directors of the government when we assert that tuberculosis extermination, in spite of a great financial sacrifice on the part of the State, will not be possible so long as the agricultural classes of Austria are not willing to have some general system of compulsory cattle-insurance carried out. Alas, we seem to-day further away from this point of view than ever.—*Idem*.

PHYSIOLOGICAL AND CLINICAL INVESTIGATION OF A WHITE DOG WITH BLUE EYES. Albinotic animals are also partly deaf and dumb. Buffon, Rawitz, Hoffmann, Fröhner, Stockfleth, Müller, Woodroffe, Hill and others have written about them. Drexler, adjunct in the Vienna Veterinary High School, owns a white dog with bright gray spots on the back. It is a male fox-terrier, deaf and dumb, but never sick, whose skin is almost wholly without pigment. The animal howls peculiarly and tries to bark, but without producing any sound. The eardrum is alive, but false. No anomalies of formation are present. The cartilaginous promontories at the base of the ear are for the most part lacking or smoothed over, the orifice into the outer ear is narrow, like a slit, the skin of the same is thin, pale, and hairless. Cerumen is not to be found. The taste and smell are normal, the eye myopic, the iris brightblue, but the reaction to light normal.—*Idem*.

URTICARIA. Against itching in urticaria Dr. Berliner recommends the following treatment: The places affected should be wet with cold water and rubbed for ten to fifteen seconds with a few grains of ordinary salt taken up on the moist finger-tips. The patient feels at first a slight burning sensation, which is followed

by that of a pleasant coolness and a total or very considerable decrease in the itching. At the same time the urticaria rash usually disappears rapidly. On the places that have been so treated zinc salve or rice powder should be applied. In cases of very extended urticaria it is well to proceed by zones and not treat all the places at once. If it is of poisonous origin a purgative, such as calomel, is to be recommended.—*Idem*.

PROPOSED LAW FOR THE EXTERMINATION OF CATTLE-TUBERCULOSIS IN DENMARK. The draft includes, according to the *Milch-Zeitung*, two principal parts: (1) in regard to the importation of cattle from abroad, and (2) in regard to domestic regulations. Further, the annual sum of 100,000 kr. shall be placed at the disposition of the Minister of Agriculture in order that he may distribute aid in the form of tuberculin-inoculation to cattle-owners, breeding and agricultural associations. Cattle from abroad can be imported only at certain places designated by the Minister of Agriculture. They must be brought immediately to quarantine stations, and, at the latest, three days after arrival be subjected to a tuberculin-inoculation. Those animals, however, which are to be slaughtered within ten days after arrival are not subjected to inoculation. The cost of maintaining quarantine stations and of tuberculin-inoculations is to be borne by the government, because the tests are made in the interests of the general public.

The domestic regulations propose that cows with tuberculosis of the udder be slaughtered by public enactment; further, that all milk-dealers and dairies shall sell only milk and buttermilk which has been warmed to 85° C.; the same regulation to apply to old milk and buttermilk imported from abroad. In regard to Pasteurizing the buttermilk no provision seems to be made provided the cream is Pasteurized.—*Idem*.

STATISTICS REGARDING TUBERCULOSIS IN THE PRUSSIAN SLAUGHTER-HOUSES. According to the report of the Minister of Agriculture and Forestry the percentage of slaughtered animals affected with tuberculosis varied in the Prussian slaughter-houses from January 1st until December 31, 1896, between 0.9 per cent. and 39.5 per cent.

The district of Osnabrück showed the smallest percentage of 0.9; then follow Gumburnen, with 3.1 per cent.; Minden, with 3.6 per cent.; Cologne, with 3.6 per cent.; and Siegmungen, with

4.2 per cent.; Cassel showed 5.9 per cent.; Hanover, 6.7 per cent.; Munster, 7.1 per cent.; Breslau, 8.4 per cent.; Posen, 9.4 per cent., and Stade 9.8 per cent. A percentage of between 10 and 20 per cent. was distributed over the districts as follows: Maneinwerder, 12.5 per cent.; Berlin, 15.1 per cent.; Potsdam, 15.6 per cent.; Frankfurt on the Oder, 13.2 per cent.; Oppeln, 13.3 per cent.; Arnsberg, 13.5 per cent.; Wiesbaden, 13.6 per cent.; Stettin, 15.4 per cent.; Leignitz, 10.3 per cent.; Magdeburg, 19.3 per cent.; Erfurt, 12.0 per cent.; Hildesheim, 11.3 per cent.; Aurich, 16.1 per cent.; Coblenz, 15.9 per cent., and Treves 10.9 per cent. The following districts showed over 20 per cent.: Dantzig, 26.9 per cent.; Koslin, 21.4 per cent.; Stralsund, 28.9 per cent.; Bromberg, 20.9 per cent.; Merseburg, 26.3 per cent.; Schleswig, 39.5 per cent.; Luneburg, 20.6 per cent., and Aix-la-Chapelle, 25.1 per cent. Of 812,731 animals slaughtered in Prussia, or at least imported in a slaughtered condition, 107,214, or 13.2 per cent., were found to be affected with tuberculosis.

SELECTIONS.

THE MICROBE OF PLEURO-PNEUMONIA.

BY MESSIEURS NOCARD AND ROUX.

THE essential lesion of contagious pleuro-pneumonia of bovine animals consists in the distention of the meshes of the interlobular conjunctive tissue by a great quantity of albuminous, yellowish, and limpid serum, which is very virulent. Suppose we inoculate a drop of it into the subcutaneous cellular tissue of a healthy cow. After an incubation, which is never less than eight days, but which may go on as long as twenty-five days and more, we shall see appearing an inflammatory, hot, hard, and painful lump, whose dimensions will vary a great deal according to the seat of inoculation, and also according to the subjects inoculated. If the virulent serum is inoculated under the skin of the trunk, of the head and shoulders, or of the upper part of the limbs, it causes a considerable swelling, which spreads rapidly and is often followed by death; this is accompanied by an intense fever. On autopsy the meshes of the cellular tissue are found distended by an enormous quantity of yellow limpid serum, here and there coagulated into gelatinous and quivering masses. The exudation is sometimes so

plentiful that several litres of virulent serum may be collected ; but widespread though it is, it never attacks the conjunctive compartments of the lung ; a little serous exudation may be found in the pleural cavity, but visceral lesions are never observed ; death is, then, the result of an intoxication. Certain subjects resist. After a few days the swelling, which has so far been hot, hard, and painful, remains stationary, then it sinks and gradually disappears without leaving any trace. These subjects will ever afterward be refractory to the effects of virulent inoculation as to those of natural contagion. This happy outcome is the rule when inoculation takes place far from the trunk, at the extremity of the tail. For example, where the density of the tissues and the low local temperature do not favor active spreading of the virus. The swelling consequent on the inoculation is always analogous to that described above ; but it remains limited in extent, and disappears gradually, leaving the animal refractory to either natural or experimental contagion. Sometimes, however, the exudation is so abundant and exercises on the tegument such a tension that it brings on mortification and the falling off of a more or less long piece of tail. Sometimes, finally, but rarely (1 or 2 per cent.), the swelling instead of remaining limited to the extremity of the tail, rapidly rises up along the organ and attacks the cellular tissue of the rump and pelvis ; death generally follows, and the regions attacked are, on autopsy, shown to be infiltrated with a considerable quantity of serum similar to that of the lung in the natural disease.

The pleuro-pneumonic serum, so virulent for animals of the bovine species, is without action on those of the other species—the goat, sheep, dog, pig, rabbit, guinea-pig, and barn-door fowls, without any harm stand the subcutaneous or intraperitoneal injection of large doses of virulent serum. These facts were established by Willems as early as 1850 ; he deduced from them the rules of an efficacious prophylaxy. But Willem's method of inoculation, which has rendered great service, is not without inconveniences. It necessitates the deposit of a drop of pulmonary serum in the cellular tissue of the caudal extremity of the animal to be immunized. Now, this pulmonary serum becomes very easily spoiled ; it rapidly becomes putrid, and the putrefaction destroys its virulence. One must, therefore, have a fresh lung for inoculation. Generally, a pleuro-pneumonic animal is slaughtered at the moment of the operation ; but sometimes the animal slaughtered has nothing but an old lesion, in which the serous exudation may have lost its virulence, when it is not entirely wanting ; sometimes also, especially

when it is a question of making truly preventive inoculations, there is no pleuro-pneumonic cow to slaughter. A real step in advance was taken on the day when M. Pasteur taught us to collect in its purity the serum which distends the conjunctive compartments of the pleuro-pneumonic lung, and, above all, to produce great quantities of virulent serum by inoculating into the calf a drop of pulmonary serum. From that time forward it was possible to make stores of virus and send it abroad as required. Yet the problem has not been entirely solved; the pleuro-pneumonic serum, even when collected in a pure state, loses its virulence fast enough; after a month, or six weeks at most, the inoculation ordinarily remains without effect. In order to be sure of being able to satisfy all wants, centres for the production of virus must be established in which, each month at least, new subjects are inoculated. That is what has been accomplished at great expense in one or two countries. The determination of the specific agent of the pleuro-pneumonic virus, its isolation, and its culture would therefore, constitute a considerable step. Unfortunately, all who have devoted themselves to this study—and their number is legion—have failed. We had on our part made numerous attempts and for a very long time. They all remained fruitless of result. When it has been collected in a pure state in the peri-lobular or subpleural lymphatic sacs, the most virulent pleuro-pneumonic serum may be sown in all the usual media in the air or in a vacuum, without giving any culture. Likewise it was found impossible to color in it by the usual processes any microbial element. We had, then, given up every attempt at cultivation when the *Memoire* of MM. Metchnikoff, Roux, and Salimbeni on the toxin and antitoxin of cholera was published. The results obtained by them with the help of collodion restored our hopes of success. We will in a few words recall the principles and technique of this ingenious method of cultivation.

Small sacs of collodion of a very thin texture are prepared; after they have been sterilized on the autoclave a few cubic centimetres of bouillon are introduced into them which has been sown previously with a dash of virulent liquid; they are closed up tight, then they are introduced into the peritoneum of a fresh and healthy animal—a guinea-pig, dog, sheep, cow, etc. One soon learns how to perform all these operations simply, and the animal never seems to suffer for an instant either from the operation or from the presence of the sacs in the peritoneal cavity. After a time, varying from some days to several months, according to the nature of the microbe

studied, the animal is slaughtered; the sac is found lodged in some corner of the peritoneal cavity enveloped by a more or less thick layer of fibrin and cellules, or of young fibrous tissue, from which it may be easily enucleated. When the subject and the liquid of the cultivation have been suitably chosen, surprising results are obtained, the interpretation of which is, however, easy. The coating of collodion presents an insurmountable barrier to the microbes as well as to the cellules. The microbes cannot leave the sac, but they may multiply in it in all security, for the cellules, not being able to get inside the microbes, are protected from the phagocytosis. On the other hand, this coating, which is inaccessible to the microbes and to the cellules, can be permeated by liquids as well as by dissolved substances; it forms a perfect osmotic membrane; where it lies changes take place which have a profound effect in modifying the primitive composition of the liquid imprisoned. Substances elaborated by the microbe may leak through to the outside, and when they are sufficiently sensitive they may cause the death of the subject, or more or less grave accidents in the way of poisoning without a single microbe having attacked the tissues; in any case it is a condition which is favorable for the cultivation, the microbic auto-poisoning being diminished, if not suppressed; finally, products which have come from the organism of the subject penetrate into the sac products, which may be favorable to the cultivation of the microbe. That is the commonest case. Also, when the sac is opened there is found in it a cultivation of extraordinary richness. "This method of procedure," say the authors, "is very convenient for preserving the fragile microbes, and it succeeds with many kinds." Perhaps, then, it would succeed with the pleuro-pneumonic virus. The result confirmed our expectations.

Sacs of collodion filled with a bouillon which had been previously sown with a little pleuro-pneumonic serum were carefully closed up and inserted into the peritoneal cavity of rabbits. After fifteen to twenty days these sacs contained an opaline liquid, a little hazy and slightly albuminous. This liquid contained none of the cellules or bacteria cultivable in the usual bouillons. On the other hand, microscopic examination showed in it, at a very high magnifying point (about 2000 diameters) and in a very powerful light, an infinite number of refringent and mobile points so attenuated that it was impossible, even after coloring, to determine their shape exactly. If anyone chose to insert into the peritoneum of the same rabbit a second sac of collodion enclosing some bouillon, identical but not sown, he might assure himself that the modifications under-

gone by the liquid of the first sac were not due purely and simply to the osmotic changes which took place at the coating ; he would, in fact, find that the liquid of the test sac had preserved its original transparency and limpidity. In reality the mobile and refringent points in the liquid sown, so numerous that in spite of their extreme firmness they rendered the liquid opalescent, are living beings which have gone on swarming to infinity, favored by modifications undergone by the liquid cultivation and thanks to the obstacles broun in the way of phagocytic action by the coating of collodion. What proves this is that if there are inserted into the peritoneum of a second rabbit two sacs of collodion which have been sown, the first with a dash of the opaline liquid thus obtained, the second with several drops of the same liquid, which have been previously heated, the latter acts exactly the same as the test-sac just mentioned ; its contents remain limpid and transparent, whilst the other soon presents opalescence and the numerous refringent points described above ; the heating had killed the germs sown. With the opaline liquid given by the fertile sac of the second rabbit, and thus successively identical results continue to be obtained. But it is prudent to make several sacs for each transfer, rupture of the sacs taking place frequently. Generally, the rabbits have become very thin when they are slaughtered ; sometimes even they succumb before the day fixed for the autopsy ; they are then in a state of profound cachexia ; they are nothing but skin and bones. Autopsy, however, reveals no appreciable organic lesion ; the blood and pulp of the parenchymas when sown in various media, even in sacs of collodion, gave no cultivation ; it is, therefore a question in all probability of a poisoning due to the diffusion outside the sac of products elaborated by the microbe ; they cannot in all cases be attributed to digestive troubles (or others) which the presence of the sac might have produced, being a foreign body. When the bouillon put in the sacs has not been sown the rabbits may receive several sacs and keep them for several months without showing the least signs of uneasiness, without losing a gramme in weight.

It seemed to us, beside, that these accidents were more marked and the cachexia more serious in proportion, as the sacs introduced after sewing were more numerous, their capacity was greater, and the cultivation arrived at was richer. Here, then, is a fresh example of an animal which is very sensitive to the toxins of a microbe, against which, as a microbe, it is yet quite refractory. We tried several times to obtain cultures in sacs in the guinea-pig, but never succeeded in doing so ; even after remaining for six weeks in the

peritoneum of the guinea-pig the most plentifully sown liquid was found as limpid as at the beginning. We have, therefore, to do with a special microbe which has multiplied in successive cultivations in the particular medium which the osmotic changes have produced in the rabbit, in the interior of the sac of collodion or of reed (the fine tubular membrane which lines the central cavity of the reed; segments of it may be used instead of collodion sacs). Is this particular microbe, then, the agent of the pleuro-pneumonic virus? Inoculation allows us to give a reply in the affirmative. In five Breton cows, inoculation of a small quantity of cultivations in sacs caused the development of an absolutely characteristic pleuro-pneumonic swelling. One of the cows succumbed with a formidable cedematous infiltration; the four others resisted. Two of these when reinoculated in a protected region with a strong dose (1 c.cm.) of pulmonary serum, showed absolutely no symptom, either local or general, while a fresh cow inoculated at the same time as these, for test purposes, with ten drops of the same serum, died twenty-two days after the inoculation. A third cow, when reinoculated four months after with 1 c.cm. of pulmonary serum from a very acute lesion, showed neither fever nor any local lesion. The fourth has not yet been reinoculated.

As we have said above, the cultivation extracted from a sac of collodion or of a reed, after being kept fifteen to twenty days in the peritoneum of a rabbit, however rich it may be, gives no culture when resown *in vitro* in the open air or in the vacuum, in any one whatsoever of the media, liquid or solid, generally used in bacteriology. One may, however, obtain cultures very similar to those of the sacs. But for that purpose we must use as our cultivation-liquid sterilized bouillon, not sown, which has been kept for some weeks in the interior of the sacs of collodion in the peritoneum of a cow or rabbit. This bouillon, though not sown, is itself modified by reason of the changes which take place through the coating-walls of the sacs; it becomes slightly albuminous; it acquires, above all, the faculty of being able to preserve for the culture *in vitro* some of the pleuro-pneumonic microbes. Only once did we obtain by sowing some drops of pleuro-pneumonic serum in freshly prepared peptonized bouillon a culture analogous to that of the sacs. At any rate, the bouillon sown after being kept seventy-two hours on the stove, showed the very slight opalescence and the small mobile and refringent specks which characterize this culture. But it was not possible for us to repeat the experiment, nor even to obtain a second culture after the one which chance had granted us.

Yet this observation confirmed us in the idea that the pleuro-pneumonic virus may be cultivated outside of the organism. We had, therefore, to find a favorable cultivation-medium. After long search we arrived at one. The liquid which gave us the best results was formed by the addition of a very small quantity of rabbit or cow serum to the peptone solution prepared by M. Louis Martin for the purpose of obtaining great quantities of diphtheritic toxin. The proportion of serum ought not to exceed one-twenty-fifth (about four drops for 5 c.c. of solution). No cultivation can be obtained if a solution of Witte or Chapotean peptone be employed; cultivation does not take place in presence of inert gases or in vacuum. The Martin serum bouillon does not only allow us to keep up the cultivation set on foot by the transference into sacs of collodion or of reed; it may also give a culture straight off when it is sown with a sprinkling of natural serum. The cultivation *in vitro* of the microbe of pleuro-pneumonia constitutes a great step in advance; one may now study its toxin and try to modify its virulence. It already has the advantage of preserving intact the pleuro-pneumonic virus, whilst it seemed to us to be perceptibly attenuated by the successive passages through the organism of the rabbit. But the degree of receptivity for the pleuro-pneumonic virus is so variable, even in individuals of the same race and age, that we do not venture to press the point. This question of the attenuation of the virus can only be settled by a great number of experiments. As to the first point—preservation of the virulence by means of the successive cultivations *in vitro*—it is clearly established by the observation of one of the cows above mentioned. This cow, inoculated on February 26, 1898, with ten drops of a 6 per cent. culture, succumbed on March 19th with an enormous œdematous swelling in every way similar to those which inoculation of the most virulent pulmonary serum provokes.

The determination of the agent of the pleuro-pneumonic virulence has not only the interest of a difficulty surmounted; its range is much wider. It gives us the hope of succeeding likewise in the study of other viruses whose microbe has up till now remained unknown. What rendered the determination of the microbe of pleuro-pneumonia so difficult was its extreme tenuity on the one hand, and on the other hand, and especially, the limited conditions of its cultivation in an artificial medium. Now, we may be allowed to conceive of the existence of still smaller microbes, which, instead of remaining *within* limits of visibility, as is the case with this microbe, would be *without* these limits. In other words, it may be

admitted that there exist microbes invisible to the eye of man. Well, even in the case of these microbes, their study remains possible, on the condition of there being found a medium which will be favorable to their cultivation. It will even be necessary in these attempts at culture not to attach too much importance to the modifications which take place in the appearance of transparency of the medium, in order to judge of failure or success. The cultivation of the microbe of pleuro-pneumonia is very fruitful; yet it does nothing but provoke a slight haze, a scarcely perceptible opalescence of the liquid; one is often obliged, in order to convince himself of the reality of the cultivation, to examine for comparison a tube of the same bouillon, not sown, placed beside it. The possibility may then be admitted of a microbial culture not modifying appreciably the appearance and limpidity of the medium. After that on the hypotheses that this same microbe would be one of those which are outside the limits of visibility, the only criterion of its presence and of its breeding by cultivation would be inoculation. Already certain experimenters may have found such cultivations; but they will not have recognized them, because the liquid having preserved its limpidity, they will deem it useless to inoculate with it. If such be the case the culture *in vivo* by means of collodion or reed-sacs, which has already rendered such services, does not seem to have said its last word; it is doubtless reserving new surprises for us.

CONCLUSIONS. The agent of the pleuro-pneumonic virulence consists of a microbe of extreme tenuity; its dimensions which are very inferior to those of the smallest known microbes, do not allow its form to be exactly determined after coloring. This microbe may be easily cultivated in sacs of collodion or reed inserted into the peritoneum of the rabbit. It does not give any cultivation when sown *in vitro* in the media ordinarily used. On the other hand, it can be easily cultivated when it is sown in Martin's bouillon-peptone, cow or rabbit serum being added in the proportion of one part of serum to twenty-five of bouillon.—*The Veterinary Journal and Annals of Comparative Pathology*, August, 1898.

THE SCOPE OF PASTEUR'S WORK.

A STATUE has been erected at Melun to the memory of Pasteur by the conjoint efforts of the agriculturists and the veterinary surgeons of the Seine and Marne departments. M. Nocard, director of the veterinary school at Alfort, in an able speech, gave a summary of Pasteur's work. He recalled an expression of an admirer of Pasteur, who declared he could not answer if he were asked

which was Pasteur's greatest discovery. M. Nocard believes that no one now would be in the same difficulty. Notwithstanding the immense value of Pasteur's work on fermentations, the silkworm malady, beer and wine ferments, and the important researches on spontaneous generation, etc., no previous work can be compared with the progress resulting from the application of Pasteur's methods to medicine. In consequence of this, etiology, sanitation, and public hygiene have been entirely reconstructed. Hospital gangrene, septicaemia, purulent infection, puerperal fever have been banished from hospital wards. Thanks to Pasteur's teaching, surgery is now so safe that the most daring operations can be performed with little risk. Then there is the prophylaxis of infectious diseases founded on the attenuation of viruses. M. Nocard believes that, notwithstanding all that has been achieved, we are only at the beginning of an era which will render Pasteur's name still more glorious. The veterinary profession and the agriculturists were the first who benefited by Pasteur's work. The periodic and repeated losses among livestock have been checked by preventive vaccination, and the past disasters are scarcely remembered. The new and brilliant discovery of serum-therapy is of service in veterinary medicine. It is the best treatment for certain equine affections, especially tetanus, whether surgical or otherwise.—*Bristol (England) Medical News.*

HOW ONE OF OUR EDITORS IS REGARDED BY THE LAY PRESS.

DR. RUSH SHIPPEN HUIDEKOPER, who knows more about horses and dogs and cats than any other man that ever attained social recognition in Philadelphia and Newport and at the New York horse-show, is one of the many heroes who have declared their intention to shed their blood, if necessary, in defence of American honor.

Dr. Huidekoper has gone to the front. He weighs something less than three hundred pounds, and is the most active man of his weight and years that I know.

Dr. Huidekoper is probably the most valuable man that chapydom has contributed to the war. Not only is he a fighter, but he is an expert surgeon. When he isn't killing Spaniards he can be taking care of the men that the Spaniards wound, and when he isn't doing either of these things he can be looking after the health of the horses.

He won his laurels as a cross-country rider years ago in and about Philadelphia, and since he took up his residence in New York he has enjoyed the unique distinction of being the only horse-doctor in the Four Hundred.

At Newport Dr. Huidekoper is both loved and feared by that extraordinary species of the genus homo, the Newport cabby. He is loved by this class for his knowledge of the horse, and he is feared by them on account of the remarkable things which he does.

One summer at Newport Mrs. Fred. Neilson had a dog that had something the matter with one of its eyes. Dr. Huidekoper was sent for, and made a diagnosis of the malady of the unfortunate beast. He declared that a surgical operation was necessary; that one of the eyes of the dog had to be removed and be replaced with a glass eye. The proposition delighted Mrs. Neilson. She consented at once. Her coachman told other coachmen of the remarkable surgical experiment that was to be made, and these coachmen told the cabbies, until there wasn't a horse-driver in the whole of the city by the sea who did not know what was going on, and who did not ask permission to see Dr. Huidekoper operate. The doctor graciously acceded to the request of the coachmen and the cabbies to be present. They watched him take out the diseased eye of the dog and replace it with a glass eye. They were loud in their expressions of amazement at his skill.

The doctor received their compliments and commendations placidly. He said that it was nothing. He declared that both the animal eye and the human eye could be removed at will and without pain. Then he coolly dropped one of his own eyes into his hand and replaced it in the presence of the gaping congregation. Ever since then the cabbies at Newport have looked at him with awe. They regard him as a man with the evil eye. They do not know that the eye he dropped into his hand and replaced is a glass eye.

If the doctor can work the same trick with the same success on the Spanish, it is probable that he will go through the war unscathed.

[For the JOURNAL.]

POOR PUSSY.

POOR Pussy, weak and unprotected;
Unmindful of the ways of man;
Now thou art old, therefore neglected
By those who do and can.

What if thine orb has dimmed by age,
And cold and stiff thy joints;
Does man successful lose the page,
Away from victory points?

Ah, pussy, would that man could know
The secret of thy senses,
For worth can gather what it sow;
All things have recompenses.

Your steps are slow, poor pussy, now ;
Your midnight wail is ended,
And many a time I wished, I vow,
Your feet had from me wended.

But now man's cruel hand of fate
Decrees thy worth is waning,
And rains upon thy lowly state
Insults, without his gaining.

Compassion is the fruit of love,
And age needs much caressing ;
I would that I could live and move
As thou, no faults possessing.

Ah, pussy, mindful of thy fate,
Can man do less than wonder ;
Oft seeming small is truly great ;
The seeming great asunder.

Ah, pussy, recollection's train
Begets a common ending
For I and thou ; but what thou gain
Has been within the sending.

And what has been is all in all,
The past, and now, and after,
While I wait the welcome call,
To see my Lord and Master.

—F. B. BRUBAKER, M.D.

THERAPEUTIC NOTES.

CONDUCTED BY DR. W. J. MARTIN,
KANKAKEE, ILL.

BOVINE TUBERCULOSIS. The application of the tuberculin-test to 308 cows within the city limits of New York has revealed the existence of tuberculosis in 52 head, a ratio of nearly 17 per cent. The milk-supply of 325 families was derived from two herds, comprising a total of 46 cows, in which examination demonstrated the presence of bacillus tuberculosis in 19. A postmortem examination in each of these cases showed that not in a single instance did the test prove false.

ANTITOXIN TREATMENT OF DIPHTHERIA. In 10,000 cases of diphtheria treated in 86 hospitals in America, Australia, and Japan with antitoxin the mean mortality was 18 per cent., against a previous mortality of 44.3 per cent. without antitoxin. In private practice there have been collected accounts of 3760 cases of diphtheria treated with antitoxin, with a death-rate as low as 7.8 per cent.

ANCIENT SCALES. In recent excavations in the ruins of ancient Egypt there have been found several scales that are almost identical with the small hand prescription scale used in pharmacy at the present day.

PERCENTAGE OF QUININE IN THE DIFFERENT SALTS OF THE ALKALOIDS. The following table, prepared by Tauret, is worthy of preservation :

	Per Cent.
Acetate	87.34
Hydrate quinine, precipitated and dried	85.70
Basic chlorhydrate	81.60
Lactate	78.26
Basic bromohydrate	76.60
Valerianate	76.05
Basic sulphate (ordinary sulphate)	74.30
Sulpho-vinate	72.00
Neutral bromohydrate	60.00
Neutral sulphate, or acid sulphate	57.24
Tannate	20.60

—Myer Bros.' Druggist.

FOSSIL BACTERIA. M. Renault, in a paper read to the Academy of Science of Paris, says that he has found micrococci and bacilli fossil in the coal measures of St. Etienne and Commentary. The bacteria were most often found preserved in nodules of flint and in deposits of carbonate of lime. He also found them among the remains of partially carbonized plants of the coal period. In his communication to the academy M. Renault figures and describes the remains of these minute microorganisms which he claims to have discovered.

THE TALLOW TREE. In the interior of Africa there grows a "tallow tree," the fruit of which contains seeds that are very rich in an extractive fatty matter which, when expressed, is made into candles that are extensively used by the natives for light-giving purposes and for barter with surrounding tribes.

ORTHOFORM. A local anæsthetic for wounds, burns, and cancerous ulcers. This agent is a new synthethic derivative, is a methyl-ester of paraamidometa-oxybenzoic acid. It is a white crystalline powder, odorless, tasteless, and only slightly soluble in water. To this partial insolubility is due the advantage of this drug over other anæsthetics, as but a small amount of the drug is absorbed by the cutaneous tissues at a time; its anæsthetic action may thus be prolonged for several hours or even days.

A hydrochloric of orthoform is obtained by the combination of hydrochloric acid with orthoform. This combination occurs in the form of crystals which are very soluble in water, but, being acid, is not suitable for hypodermatic use, although its anæsthetic properties are not less active locally than orthoform.

Orthoform is said to be absolutely nontoxic. As much as sixty grains were given to rabbits per os for several days in succession. Dogs took as high as ninety grains at a dose, while forty-five grains were given hypodermatically, all without toxic effect. Along with its anæsthetic action, orthoform is an active antiseptic, preventing putrefaction and fermentation, and arrests their progress when present. It is best used in the form of a powder sprinkled evenly over the surface of the wounds.

An ointment of orthoform, for the dressing of painful wounds and burns, of the following formula is highly recommended: \mathcal{R}_y . Orthoform, 96 grains; Adeps et lanolin, of each \mathfrak{z} iv. \mathcal{M} .

Owing to its high price (\$2.00 per ounce), orthoform is not likely to come into general use in veterinary practice.

REMOVAL OF BLOODSTAINS. Bloodstains may be removed from the clothing by washing in a weak solution of tartaric acid and afterward rinsing in clear water.

ANTISEPTIC POWDER. Iodoform, finely powdered, 930 gm.; Benzoin gum, finely powdered, 930 gm.; quinine, finely powdered, 960 gm.; magnesium, finely powdered, 930 gm.; oil eucalyptus, 120 gm.—*A. J. Pharmacy.*

POTENCY OF CRUDE DRUGS. Crude drugs vary greatly in their actions, some being potently active in their physiological action, others again being inert and useless. Great care should therefore be exercised in the purchase of crude drugs, powdered or otherwise. Cantharides, for instance, are often deprived of their physiologically active constituent, cantharidin, by unscrupulous manipulators by steeping the powdered drug in successive baths of chloroform. Commercial oil of eucalyptus is often so badly adulterated as to consist almost wholly of oil of turpentine of a very inferior quality. The writer once nearly lost an arm from septicæmia while depending, all unaware, upon an adulterated oil of eucalyptus as an antiseptic.

SUNFLOWER-SEEDS AS A POULTRY-FOOD. Sunflower-seeds rank high as a food for fattening poultry for market, giving the plumage a remarkable bright and healthy appearance, hence this food is of especial value for feeding to poultry used for exhibition purposes. Owing to a certain amount of oil contained in the seeds, it is an excellent food to feed to fowls during the moulting period. The seeds also increase the egg-producing capacity of ordinary hens.

LIQUID OLEATE OF AMMONIA LINIMENT. *Ry.*—Ammonia water, 100 gm.; lard oil, 90 gm.; cottonseed-oil, 110 gm. Mix by agitation in a bottle. This liniment is of the same ammoniac strength as liniment of ammonia U. S. P., and contains 57 per cent. of ammonium oleate which is perfectly saponified.—*Bull. Pharmacy.*

EVERY veterinarian's office should contain a well-stocked pharmacy, together with all the necessary utensils for the proper conduct of the same. These utensils should be kept scrupulously clean and in perfect order, so that each shall be readily available when wanted.

FORMALDEHYDE. The results of all investigations have led to the following conclusions :

1. Formalin in concentrated solution 1:10,000 makes the growth of tuberculosis, anthrax, cholera, typhus, pus, and diphtheria germs impossible.

2. In gaseous form a weak dilution is sufficient to check the growth of fungi.

3. A 1 per cent. solution will kill pathogenic organisms in an hour.

4. With a 3 per cent. solution and the final addition of alcohol it is possible to make the hands germ-free. Whether the skin of the hands is attacked by this method remains to be proved.

5. The spraying with formalin solution and the subsequent inclosure of articles in a closed space will easily sterilize them.—E. A. DE SCHWEINITZ, Ph.D., M.D.

As a local anæsthetic for hypodermatic use in the removal of tumors, a combination of cocaine, morphine hydrochlorate, and sodium chlorate gives good results. The manufacturing pharmacists now supply the above in tablet form.

Cottonseed Oil in two-ounce doses given three times a day mixed in oats is an excellent remedy to relieve and cure the irritable cough and sore-throat of horses suffering from influenza.

Sulpho-carbolate of zinc in drachm-doses given three times a day in warm water is a reliable remedy in acute or chronic dysentery of horses, more especially if the discharges are fetid in odor.

A solution consisting of 18 grains of bichloride of mercury in 10 ounces of lime-water is an efficient application in poisoning by *Rhus toxicodendron*.

It is said that the odor of iodoform may be removed from the hands and clothing by washing the hands and sponging the clothing with orange-flower water.

Formalin has been found to be an efficacious antidote to the stings of insects, the bites of serpents and small animals, such as dogs, cats, etc. The method of application is with a small brush, and after the evaporation of the formalin it may be reapplied. The effects are most soothing, pain is relieved, and inflammation rarely occurs after its use.

Apomorphine is a prompt and reliable antidote in strychnine-poisoning in dogs. It can be administered either hypodermatically or by the mouth. The tablets put up for use in human practice answer well for this purpose.

Where slow cutaneous absorption of a drug is desired in the form of an ointment, petrolatum should form the base. Where rapid absorption is desired, lanolin should be used as a base.

Sodium salicylate and antipyrine in combination are incompatible.

REPORTS OF CASES.

OPERATION FOR REMOVAL OF POST-NASAL FIBROID TUMOR.

By C. J. SIHLER, V.S.,

KANSAS CITY VETERINARY COLLEGE, KANSAS CITY, MO.

THE rarity of an operation involving the removal of a post-nasal or pharyngeal tumor through the trachea is a justification for the recital of a successful case.

A horse belonging to Mr. Culver, of Kansas City, Mo., and driven by him for some years as a family horse, became useless as such owing to an extreme difficulty in breathing. The animal was sent to a farm some distance from the city, with the expectation that rest would bring relief. After some weeks, no improvement being shown, the owner called in a local veterinarian who was at a loss to determine the cause of the trouble. Though of no particular money-value, the owner of the animal determined to continue his efforts for its relief, and requested Dr. R. C. Moore to examine the animal.

On a cursory examination it was found that the difficulty was caused by an obstruction of the nasal passages, the nature of which could not be determined with the facilities at hand. Upon suggestion of Dr. Moore, the animal was sent to the Kansas City Veterinary College Hospital for further investigation and surgical relief. The horse arrived apparently very much distressed, breathing with much difficulty, the nostrils discharging a thick, viscid fluid. Examination showed that the labored breathing was due to a dense growth of some kind in the superior part of the nasal chambers. A tracheotomy-tube was introduced tempo-

rarily, to afford relief for the time being. The animal was allowed to rest until the next day, when a more complete examination was made. By passing a rubber catheter up the left nostril as far as the posterior nares an obstruction was found, preventing its further passage. A like obstruction was found in the right chamber. By closing the tracheotomy-tube and right nostril the animal could, by considerable effort, breathe through the left nostril. When the left nostril was closed it was impossible for him to breathe, showing that the right chamber was entirely occluded. It was decided to endeavor to remove the growth, but how?

The obstruction was situated so far up the nasal passage and so completely filled both chambers that it could not be grasped and removed through the nasal passage, and to cut down through the frontal sinuses and effect its removal would require a very large opening, which when healed would disfigure the animal, thus rendering him worthless as a driving-horse. A trephine-button taken from the frontal sinuses would only determine the character of the growth and would be of no practical value. A wire loop was passed up the nostril with a view of passing it over part of the growth and removing it to determine its nature, but this was not possible, as the wire would not pass beyond the anterior surface of the growth. However, being somewhat assured of its non-malignant character by the absence of hemorrhage from the nostrils, it was finally decided to make an opening through the trachea and endeavor to determine the nature of the growth and, if possible, remove it through that channel.

All the instruments necessary were cleaned and placed on a tray, with cotton, sponges, and a 5 per cent. solution of creolin. The animal was cast and secured, and chloroform administered through the tracheotomy-tube. It required about one hour to place the horse completely under the influence of the anæsthetic, probably owing to the very slow respirations, which varied from four to six per minute. Then the temporary tube was removed and one with rubber tampon substituted, and chloroform continued. The hair was clipped from the intermaxillary space and neck as far down as the tracheotomy-tube, and the parts washed with a 5 per cent. solution of creolin. An incision was made through the skin and subcutaneous tissues, and hemorrhage checked by sponging, after which an opening was made through the first four rings of the trachea and the cricoid cartilage of the larynx. The small tracheal vessels were caught with artery forceps and occluded by torsion, and the trachea and exposed larynx cleaned with the creolin solu-

tion. The hand was then passed through the larynx and pharynx, with some force carefully applied. The growth was readily reached and found to be firmly attached to the base of the vomer and extended around the septum nasi, the ends extending into the nasal chambers. It was impossible to get an *écraseur-chain* through the opening and over the growth, and it could not be torn loose with the fingers. The operators were in a quandary how to proceed, when the farmers' friend, the baling-wire, was thought of, and a loop made of it was passed up the right nostril, the hand passed through the opening in the trachea, raising or depressing the growth as occasion required to let the wire pass. This loop was drawn through the opening in the trachea and enlarged sufficient to pass over the growth. Force was now applied and the growth torn from the base of attachment, and removed through the nostril. In its passage it probably compressed the turbinated bones, but apparently did not injure them. The growth proved to be a fibroid polypus, eight inches in length and three inches in diameter, the largest of its kind ever observed by the operators. Its attachment was very broad, about five inches in length and two and one-half inches in width. The parts were sponged with the creolin solution and the posterior nares, pharynx, and larynx packed with cotton, and a suture through the external wound was taken.

This concluded what the operators deemed an unusual operation. The animal rallied nicely, and in about an hour was walking about. The following day the cotton was removed from the pharynx and larynx, that which filled the posterior nares being allowed to remain for forty-eight hours. It was found necessary to cast the horse to remove it, as the animal would not allow the dressing forceps to be introduced into the wound. The tracheotomy-tube was removed the second day and the parts were cleaned daily with the creolin solution. The wound healed kindly, and the fourth week it had entirely closed and the animal was pronounced well.

NOTES FROM CLINIC OF MCKILLIP VETERINARY COLLEGE.

MESO-NEURECTOMY. Neurectomy of the median nerve in some forty cases confirms the statements of Prof. Dr. Pellerin as to the value of this operation in chronic tendonitis. The results in carpalitis and sesamoiditis are less convincing, yet marked benefit has been derived in many cases.

PERONEUS TENOTOMY. Peroneus tenotomy, together with division of the tibial fascia, seldom fails to relieve the worst cases of stringhalt.

POSTERIOR TIBIAL NEURECTOMY may be resorted to in ringbone when other methods have failed. In one case the lameness of spavin yielded to this operation after having been subjected to all forms of treatment during two years.

CUNEAN TENECTOMY is particularly effective in prominent spavin, and after repeated counter-irritation has failed to relieve the lameness. Even as a first resort, statistics gathered at the clinics show a greater percentage of recoveries than all other forms of treatment combined.

ARYTENOIDERAPHY. Arytenoideraphy is a new surgical treatment for roaring due to laryngeal hemiplegia. The operation, *born* and *christened* during the clinics of 1897-1898, consists of excision of the vocal cord and suturing the arytenoid cartilage to the crico-thyroidean ligament. Six patients have received the treatment to date with results varying from marked improvement to complete recovery.

From a physiological and surgical aspect it is more rational than arytenectomy, and being much more simple is not followed with the same serious sequelæ.

A series of experiments is now under way in the department of surgery, and a detailed description will be submitted to the profession as soon as sufficient data is at hand.

AMONG MISSOURI VALLEY VETERINARIANS.

Dr. W. B. Niles, of Ames, Iowa, will take charge of the serum-treatment experimental work relative to hog-cholera in Iowa.

Dr. Oscar Verschelden, of St. Mary's, Kan., is sojourning in Europe for a period.

The inspection service at South St. Joseph, Mo., originally was composed of Drs. John M. Forbes, James Wilson, and James S. Kelly. Recently there have been added to the force at this point Drs. Howard M. Burgess, Thomas H. Ripley, H. J. Washburn, John B. Wright, and W. W. Johnston.

Dr. Harry V. Good, of St. Joseph, has sold his practice to Dr. J. Netherton, of Gallatin, Mo.

Drs. T. J. Turner, of Indianapolis, Ind.; I. K. Atherton, of Marshalltown, Ia.; E. P. Schaffter, of Cleveland, O.; N. R. Thompson, of Pueblo, Col.; F. W. Hopkins, of E. St. Louis, Ill.; and T. A. Bray, of El Paso, Tex., have received honorary membership in the Missouri Valley Veterinary Medical Association.

Drs. S. Stewart, W. A. Heck, and John Forbes are moving spirits in the Missouri Valley Veterinary Medical Association.

Dr. J. E. Blackwell, of South Omaha, Neb., has been transferred to the inspection service at South St. Joseph, and Dr. W. A. Heck, of Kansas City, has been transferred to the same point and placed in charge of the microscopic inspection.

Dr. W. N. D. Bird, of the class of 1898, Kansas City Veterinary College, has charge of the quarantine service at Arkansas City, Kan. He recently made a tour of the Wichita, Kiowa and Comanche reservations looking up the existence and extent of Texas fever, which has been somewhat prevalent in these districts.

Dr. C. H. Davies, M.D., D.V.S., another of the class of 1898 of the Kansas City Veterinary College, is stationed at Swift's establishment, Kansas City, in the meat-inspection service; Dr. John D. Cooper at Kansas City and W. W. Johnson, M.D., V.S., at St. Joseph, Mo.

James Otterman, M.D., D.V.S., and Dr. W. N. D. Bird will be transferred to Louisville, Ky., on September 1st.

Dr. Charles J. Sihler, of Kansas City, Mo., has been reappointed assistant inspector and assigned to duty at Monett, Mo., in charge of cattle-transportation on the St. Louis and San Francisco Railway.

Dr. Sylvester J. Murray, of Medo, Minn., graduate of Toronto, class of 1894, has been appointed an inspector in the Bureau of Animal Industry, and is stationed at Parsons, Kan., on the Missouri, Kansas, and Texas Railway in quarantine-line service duty.

Colonel Albert Dean, livestock agent at Kansas City, has been transferred to Brownsville, Tex., as Mexican livestock inspector, supplanting Dr. Frank C. Elles, who has been transferred to the meat-inspection service at East St. Louis, Ill.

Dr. J. F. Jones, graduate of the Chicago Veterinary College, class of 1894, finds Arkansas City, Kan., a good location.

Dr. S. F. Luckey, graduate of Toronto, class of 1896, of Perryville, Mo., is a State inspector and located at Thayer, Mo. At this point a large dipping-vat will be completed in a short time, and all Southern cattle will be dipped for the purpose of destroying the ticks (*Boophilus bovis*), and thus in a measure controlling the disease. Dr. Rice P. Steddom will assist in the work at this point.

Dr. James C. Keeley, of Brownsville, Tex., graduate of the Kansas City Veterinary College, and recently located at the Chicago Station of the Bureau work, has been transferred to the quarantine division.

Drs. W. H. Richards and Louis F. Ryan are prominent practitioners at Emporia, Kan.

Dr. John T. Crosby, M.R.C.V.S., recently of St. Louis, Mo., finds his new location at Arkansas City, Kan., a promising one.

Dr. H. L. Ramacciotti, of Omaha, left on the 22d, with his wife and son, for a trip to Hot Springs and the Black Hills.

Dr. J. S. Anderson, of Seward, Neb., who was recently appointed State cattle inspector, has since enjoyed a great deal of riding over the State in search of the little tick, which he has succeeded in barring from the State. At his home he also enjoys a fine string of trotters, some of Greenlander's get.

Dr. J. E. Blackwell has left Omaha to take up his new position at St. Joe.

D. S. E. Cosford, of Omaha, has within the past year taken to himself a wife.

Dr. W. D. Hammond, of Wayne, Neb., the resident State Secretary of Nebraska for the U. S. V. M. A., has had his time well taken up gathering the reports on contagious diseases in that State.

Dr. J. J. Drasky, Crete, Neb., has shown the results of his extensive practice by building a fine new infirmary, thus showing the increasing tendency of making such investments in a State where it has been supposed that animals were too cheap to pay for treatment.

Dr. Fred Evans, who has recently located at Grand Island, Neb., reports a steadily increasing business.

Dr. V. Schaefer, of Tekamah, Neb., who is death on actinomy-cosis, has just completed a new infirmary and also made extensive additions to his house. He practically controls the practice of Burt County.

Dr. C. M. Day, of the Bureau of Animal Industry, is now stationed at the Nebraska Experiment Station, where he is coöperating in gathering data regarding serum as a cure and preventive for hog-cholera. He has made several trips over the State, making many friends for the Bureau.

Dr. George B. Tucker, of Lincoln, Neb., has completely renovated his large infirmary and made his office more spacious, indicating the rapid development of an extensive practice.

Dr. M. V. Byers, of Osceola, Neb., has the sympathy of his fellow-practitioners in the loss of his little child.

Dr. A. C. Bostrom, who has but recently located at Minden, Neb., has been making extensive investigations in "cornstalk disease" in horses and cattle.

ANOTHER REMARKABLE LETTER.

dear Sir—I sit myself to ask you a profishonil Quistion—this is sumthing I sildum do as I am heed thority in this siction.

But We have a farmor who ouns a hurd of fittine jursers an thore is Somthing wrong with thim *cattles* and I believe it is tubercouloey—to Kiep up my rippution i must make a govnormental tist —whure can i git tubercolin—some body said Millcords are best and some one seys it is put under The hide with a haullow niddle —where can i git one and whare do you go under the hide at—i know the ballance of the manution bout the tist awnser quicke as you no it will take sum dais to git the wharewith.

Yourn Troughly

— — — — — Dr of this siction.

Rats are often the carriers of contagious diseases from one locality to another. In China and India outbreaks of the bubonic plague have often been traced to this source.

All over the West the adoption of vaccination as the best solution for preventing outbreaks of anthrax and its allied forms has proved itself worthy of application, and is now relied upon by many who were at first doubtful of its efficacy.

EDITORIAL.

AT OMAHA.

THE thirty-fifth annual meeting of the U. S. V. M. A. will direct association influences in an entirely new territory. It will reach a large number of the profession who for five or more years have felt the blighting influences of the depression of livestock and agricultural pursuits. These conditions have made the employment of members of the profession through the Central West meagre in character, and brought such uncertain and precarious incomes to the profession in general as to make existence only possible. With such conditions few could attend our meetings during this trying period, and slight was the incentive for self-improvement when the depressed livestock interests would not warrant the employment of professional skill. With the brighter outlook, the more favored condition of the future market for horses, the decline of the cycle craze, the uselessness beyond that of a toy of the automobiles, the future becomes again promising and auspicious. The greater interest in veterinary sanitary science, the subjects of meat- and milk-inspection, and the foreign exportation of our food and manufactured products will all tend to increased interest in the national association affairs, and be reflected in the increased attendance of many who have heretofore been denied this privilege. This is the last call, and every veterinarian in the Central West should take part in the Omaha meeting.

AID THE RED-CROSS ORGANIZATIONS.

No organization is better known throughout our broad land and in many foreign countries than the "Order of the Red Cross." Where it goes it carries gladness, comfort, assistance, and every solace, sympathy, and aid that tend to lessen every form and kind of suffering in every nook and corner of the world. In the spreading of its wings of peace and good cheer; in the open hand of assistance, ever ready to lend substantial aid, with its self-sacrificing women and men identified with it for these blessed purposes, in all its ramifications, it knows no nationality, creed or rank; but to one and all tenders and pours forth its kindness and hospitable attentions and support. It needs at home the recog-

nition, support, and practical aid of every good citizen of our land. It needs yours, fellow-veterinarians. It is worthy of every support and aid you can give it. See to it that the branch in your village, town, or city, county or State receives your aid and assistance, and join in the feeling that the world is growing better in that the fellowship of man grows stronger and closer.

THE COLLEGES OF THE CENTRAL WEST.

THE colleges of the Central West are some four in number. The older one, at Ames, Iowa, in connection with the Agricultural College, with a curriculum of three years of eight months each, has the longest course of study.

The Kansas City is the next in length of years, and maintains a course of three years of six months each.

The Indiana Veterinary College, at Indianapolis, maintains a two-years' obligatory course, with an optional third-year attendance. The many rapid changes in the corps of instructors tend to lessen the value of the teaching.

The Western Veterinary College, of Kansas City, Mo., is a new school. It proposed in its initial prospectus to maintain a curriculum in accord with the requirements of the Association of Faculties and the U. S. V. M. A. But the first year of existence caused its relinquishment of this plan and the adoption of a short two-years' course. It has also adopted a "stockman's" course, a very dangerous precedent, and one that will be more forcibly appreciated in the event of future legislation tending to define and regulate the requirements for the practice of veterinary science.

These schools have a wide field for new students, and no doubt their classes will pick up much greater this year than last.

THE PROGRAMME IS ON TRIAL.

THE programme of the U. S. V. M. A. will be on trial at Omaha. After much consideration this year it has been planned almost wholly in the interest of the everyday practitioner, and the attendance and interest of this very large proportion of the active veterinarians all over the land will largely determine how far this plan will be followed out in future meetings of the association. Those who have many times contended that the meetings were almost wholly taken up with subjects of a general character, veterinary sanitary problems, infectious and contagious diseases, to the

exclusion of the more practical ones of everyday import to the average veterinarian are certainly sure of abundant entertainment and profitable subjects for consideration at Omaha. Let this long-neglected class pour out in unusual numbers at Omaha, and future programmes will be solved. If not, then we must look only for local interest in national meetings and the development of kindred associations for the consideration of the broader and truly national problems of veterinary medicine.

NEW YORK STATE is now realizing the force of the action of Massachusetts and Pennsylvania requiring tuberculin-tested cattle free from tuberculosis to replenish their dairies, and the State Board of Health are more than apprehensive over the prospects of rejected cattle being sold in the Empire State. Well she may be, and if her people do not adopt some broader methods beyond the picayune measures now prevailing, she will find that the time will soon come when she will be sorely taxed in a financial direction to do this work, so pressing over our own land and the civilized world. A more aroused public, growing better informed daily, will not tolerate much longer a continual record of fourteen deaths out of every one hundred in the civilized world, and 10 to 15 per cent. of the dairy cows suffering with the same disease, yet supplying as a raw product one of the principal foods of mankind.

IF a case of milk-fever could survive the treatment prescribed by a recent writer in the *Jersey Bulletin* it surely would be proof almost against a rifle-bullet. If pregnancy in cows is to be surrounded with such preparations there will soon be a new occupation for many people, as bovine maternity-nurses, and central headquarters or directories where these may be obtained in all large dairy-districts.

EVERY veterinary organization at its opening fall meeting should take up the question of army legislation and plan to aid the national organization during the coming year in securing a reorganization of our army veterinary service. The time is opportune, the need never more forcibly presented, and the hour to wipe away this reflection upon our profession has arrived. It can only be done by a strong united effort and a good active representation at Washington, that will be properly supported by the veterinary profession.

ARMY DRIFT.

Now that affairs in connection with our army are being dealt with in the daily press, it is well for the people at large to better know the actual condition of the army veterinarians. While a professional man, he is rarely if ever consulted in matters pertaining to his profession, except in the treatment of sick and disabled horses, and in that he is badly hampered by reason of the inadequate supply of drugs and instruments, which is now better known, since the public have gained information about the lack of needful remedies in dealing with sick soldiers. Even the purchases of these drugs and instruments are through incompetent sources, and are drawn quarterly by troop commanders, usually without any reference to the needs of the veterinarian, thus causing double loss, and unnecessary instruments are purchased, as well as useless ones, and surgical treatment is not what it should be on account of the lack of proper instruments.

Army veterinarians, as a class, keep themselves well posted with the advance of medical science, and when new remedies or a specially pure drug are needed for any unusual case, they can only be had by special requisition on the Quartermaster Department, which, as usual, has to go through the "Circumlocutionary Office," so that on its arrival (provided it is allowed), the patient's bones are quite as likely to be bleaching on the prairie.

In the supply of food-products, especially that of meat and milk, there are none so well qualified for such inspection as this as the veterinarian, yet the supply of meat is received and inspected by young officers who do not pretend to have any knowledge of such matters. Is it not time that this uncalled-for state of affairs should cease?

In these days, demanding proper sanitary conditions in the production of milk and its products, cream and butter, there is no longer any excuse for these to be supplied from cows stabled in unsanitary huts, where their principal sustenance in winter is derived from stable manure and refuse. Men's systems sustained from food-products with no better safeguards around them than these are not fit for hardship and privations in times of war, and we need not wonder at the prevalence of tuberculosis among many of the soldiers under such conditions as these.

Horses condemned for acute and chronic diseases (laminitis,

navicular, etc.) are, like all others, sold at auction for a nominal sum, and have to end up their agonizing existence under new and exacting masters, when they should have been humanely destroyed.

The loss by death and condemnation is quoted at about 25 per cent., but this would be very much greater were it not for the aid many times given by the private medicine-case of the veterinarians of the army, who keep in touch with the advancement of veterinary science.

The purchase of cavalry and artillery horses, as well as quartermaster's animals, by incompetent persons and through city contractors is one of the sources of the greatest loss, and impossible to estimate, many being physically unsound and in conformation wholly unsuitable for service, though they have been purchased at the extravagant price of upward of \$150 in times of peace.

A recent statement in one of the leading livestock journals of Chicago, showing where fifty horses were passed in sixty minutes, needs no further comment.

Prior to the inauguration of the war just closed there were about twelve thousand horses in the regular cavalry, which at \$150 each cost \$1,800,000; therefore the losses by condemnation and death of 25 per cent. represent \$450,000 annually.

Cavalry horses are condemned by an officer (inspector) who visits posts annually. The animals are submitted by the troop commanders many times without consulting the veterinarian, though neither inspector nor troop commander has any knowledge of matters veterinary. In this way frequently good horses are condemned and poor ones retained. Why not wipe out the entire veterinary force of the army rather than continue it in its present condition.

During the recent war a board of cavalry officers, assisted by the army veterinarian, were sent on purchasing tours through the West, and it is to be noted at this time that in every way the animals purchased in this manner were more serviceable than any furnished by the quartermaster's department, and were in every way superior so far as physical soundness and being well-broken. The price, fixed at \$100, as an emergency one, would have been, under ordinary conditions, reduced to half that figure, though at \$100 per head \$50 each was saved. On the purchase of \$600,000 worth of horses there is represented a clear saving of \$150,000. Here may be noted one of the reasons why army veterinary legislation has its opponents, because these matters would have a thorough sifting and the Government would be saved thousands of dollars.

The question of forage is an all-important one. Like food-products for the soldiers, it is received and inspected by a young officer acting as quartermaster, without any education or special knowledge in this direction, and the annual loss from this source is very great, and many times even this officer relegates this duty to a subordinate who knows no more and cares less. Often inferior and innutritious in quality, and having undergone changes which make it a dangerous food, yet the veterinarian must deal with the sickness resulting therefrom and suffer any reflection or criticism that may be passed upon him, though powerless to prevent these disastrous results that are sure to follow the purchase of such provender. Twelve pounds of oats and fourteen pounds of hay, with three pounds of bedding, are the daily rations. A saving might be made here under proper veterinary supervision and in times of peace and under special climatic conditions known to the experienced army veterinarian might be made with benefit to the animals and a great saving to the Government. Thirty-six thousand pounds of oats per day, at two cents per pound for one hundred and eighty days, would represent a saving of \$129,600. Why does this reckless extravagance go on? This would only represent a reduction in the daily ration of three pounds of oats per day.

We sum up to find the annual loss by condemnation to be \$450,000, a saving that could be made annually with advantage to the service—in grain of \$129,600; in the purchase of cavalry horses annually (not war times) \$150,000; losses incidental to lack of proper drugs, instruments, etc., \$100,000, with a total of \$829,600. Such are the figures in the regular cavalry branch alone. If to this were added artillery and quartermasters' animals, the sum would be increased enormously.

Let us suppose that the loss annually is one million dollars, and to those who wish to question it, divide it in half, thus saving a half million dollars. Why do not those legislators at Washington, who have been designated as the "watch-dogs" of the treasury, see to the closing up of this great leak and give to the veterinarians of the army the necessary rank and commission that give to them the power to control matters and no longer stand aghast at this extravagance and be cajoled into its continuance by the "dog in the manger" in the army.

Our vanquished enemy, Spain, where it is said that only one out of every five of her people can read and write, does not for a moment tolerate such a condition of affairs as this.

The army is in the hands of Congress, and now that retrenchments will be demanded on all sides in order that our people shall not be continued any longer than necessary under war taxes, as they have been for thirty years, there should be a revolution in the management of our army department, and this pernicious and blighting state of affairs remedied.

“Burnt-leather inhalations” prevail as a sovereign remedy among the farriers, or self-styled “horse-doctors,” in the various troops and companies.

The Buffalo *Horse World*, in its issue of August 12th, strongly urges editorially the establishment of a proper veterinary corps for our army, and points out the great unnecessary losses.

Every influence should be exercised in urging favorable consideration by the War Department of the present Army Bill before Congress. It has the favor of Chairman Hawley, of the Senate, and General Hull, of the House, and it received the indorsement of Adjutant General Ruggles before his retirement.

It is rumored that the social aspect of the issue of recognition to army veterinarians stands also in the way, and for this taxes raised from our people to the extent of nearly ten millions of dollars now invested in livestock for our army stands imperilled because of the lack of an efficient army veterinary medical corps.

Our defeated and now third-rate nation, Spain, fully realized the importance of the care of her horses in army service, and no such reports are heard relative to the neglect of her horses and mules, sickness without attention, reckless buying and shipping of such perishable wealth as have been repeated so often here from every shipping-point and camp. Spain's veterinary corps consists of one first-class veterinary inspector (colonel); two second-class veterinary inspectors (lieutenant-colonels); nine veterinary majors; seventy-three veterinary captains; eighty-seven veterinary lieutenants; some two hundred and thirty-five in all.

Much comment is indulged in as to the Government spending large sums of public moneys in the preparation of a hog-cholera serum, the formula of which they refuse to disclose. This leans more than a little to the secret-remedy pursuit, and many are asking if this is a legitimate field of our Government.

U. S. V. M. A. MEETING, 1898.

OMAHA, SEPTEMBER 6, 7, 8.

Some Points to be Specially Remembered.

THE Executive Committee meets on the afternoon of the 5th, and you should have your application for membership before it at that time.

Your attendance will demonstrate your interest in the adoption of surgical clinics as a feature of our meetings.

Modes of control, methods of local and general anæsthesia, are of everyday importance to you.

How others do certain operations is sure to afford you some new ideas and points and, perhaps, bring out some valuable suggestion from you. All the operations are such as you may be called to do any day, and you want to know the best methods extant.

Meat-inspection, of so much vital importance to all, may not be a pressing question in your territory to-day, but can you say it will not be to-morrow? You may not care for such work yourself, but this does not lessen your need of knowing all about it. You have colleagues in the profession, fellow-members in the Association specially equipped for this work, and your familiarity with the subject and appreciation of its importance may aid them, and you do your colleagues and community a well-deserved favor in this direction.

The specimens shown will be an object-lesson of the greatest importance, and Omaha, as one of the largest packing centres of the world, affords an excellent opportunity of studying a practical aspect of the question.

Rabies and osteoporosis are to-day two of the most important diseases extant. On the one hand, to know how to diagnose accurately and how best to deal with these cases when they appear, and render the best services to mankind, are important problems. On the other, the import of osteoporosis from the commercial side, and how best it may be controlled and limited, is an everyday demand in a goodly proportion of our members. What it is, and how best to control its inroads, are your and my field to open and solve. Your experience may contain valuable points.

The Exposition in all its grandeur is there to attract you, interest and educate you, and it will afford the last opportunity this century now closing of seeing the beautiful sights with which the Trans-Mississippi Exhibition abounds. Take your wife or parents

with you, and let them see and know about these undertakings in the Central West.

There are questions to be determined of the greatest import to all concerned, and your views in these matters will best help to solve them in the interest of the greater number.

Messrs. Charles F. Squibb and W. W. Dixon, of Brooklyn, representatives of the well-known firm of E. R. Squibb & Sons, will accompany the JOURNAL "special" to Omaha on September 3d.

President Jobson, of the Pennsylvania State Veterinary Medical Association, has appointed Drs. J. C. Foelker, of Allentown, and F. F. Hoffman, of Brookville, and J. Curtis Michener, of Colmar, delegates to the U. S. V. M. A.

Treasurer William H. Lowe, of Paterson, N. J., will be on the JOURNAL "special" for Omaha.

The Minnesota and Manitoba delegations will leave Minneapolis at 7.10 P.M., St. Paul at 7.45 P.M., September 5th, over the Omaha route.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, will join the "JOURNAL Special" at Harrisburg.

President Salmon, of Washington, and State Veterinarian Clement journey by the "JOURNAL Special."

Dr. J. C. Foelker, of Allentown, State Delegate from the Pennsylvania Association, will be on the "JOURNAL Special."

Prof. John W. Adams, of the Veterinary Department of the University of Pennsylvania, will include a trip to his old home at St. Paul, Minn. He also travels by the "JOURNAL Special."

Drs. B. M. Underhill, of Media, and W. P. Phipps, of Lionville, Pa., will be in attendance at Omaha. They are among the "JOURNAL Special" passengers.

All veterinarians in the Eastern and central Western States may join readily the "JOURNAL Special" at Chicago, leaving the latter city over the Burlington route on Sunday evening at 5.45 P.M.

Mr. and Mrs. William P. Allen, of Philadelphia, who were visitors to the World's Fair Congress of our Association, will be visitors to the Omaha meeting; they go by the "JOURNAL Special."

Editor Bell, of the *American Veterinary Review*, will be numbered among the "JOURNAL Special" passengers.

With the Treasurer, Dr. Wm. H. Lowe, of Paterson, N. J., among those who make up the Eastern delegation of the "JOURNAL Special," the commissary ought to well provided for. It is always safe to be in close touch with the man "who sits on the chest."

SOCIETY PROCEEDINGS.

CHICAGO VETERINARY SOCIETY.

THE meeting was called to order at 8 P.M., June 9, 1898, by Dr. Walker, President. Dr. Walker stated that he had been unable to see the directors of the Chicago St. Andrew's Society in regard to the rental of the club-room we are now occupying. He promised to see them before the October meeting.

The report of the Treasurer showed \$14.03 in the treasury. No report from the Secretary.

Dr. Griener read a paper relative to the subject of "Examination of Horses for Soundness." Much interesting discussion took place from the doctor's production and opinions. On motion, the discussion was closed.

The following members have severed their connection with the Society : Drs. E. Jentzsch, James Flemming, J. A. Bovett, Jr., Harry J. Stewart, D. W. McKillip, A. R. Wake, J. McBirney, R. H. Tracy, L. Clark, W. J. Stewart, C. H. Zink.

On motion, adjournment.

L. CAMPBELL, D.V.S.,
Secretary.

Dr. Griener's Paper.

My subject for this evening is an extensive one, and I am afraid that I am not able to give each the attention it should have; but if I can only arouse a lively discussion on the different diseases, among my fellow-members, I shall be very grateful. The essay is confined to the foot, and includes low ringbone, side-bones, coronitis, calks, quarter-cracks, toe-cracks, navicular arthritis, keratoma, contraction, laminitis, corns, dropped sole, thrush, seedy toe, canker, and quittor.

Low ringbone is a disease affecting the distal interpharyngeal articulation (or coffin-joint). It appears as an exostosis, generally on the anterior of the limb at coronet, but may appear somewhat laterally, and generally involves the whole joint; whether causing lameness or not, I would consider the animal unsound. We may find some enlargement on the os corona not involving the joint, also called false ringbone; this I would not consider an unsoundness.

Side bones, or ossification of the lateral cartilage, when they become hard and unyielding, are found on the posterior lateral aspect of the foot. There is generally very little lameness present. Would consider it an unsoundness.

Coronitis, or *villitis*, inflammation of the coronary band, not very often met with; recognized by heat, pain, and fulness of coronary band; is an unsoundness.

Calks, or treads on the coronet, received from the animal stepping on himself with shoe on opposite foot; the injury may be slight or very grave; unsoundness would therefore depend upon injury to the part.

Quarter-cracks are splits or fissures on the hoof occurring at the quarter,

mostly found in front feet. They may be superficial or deep. When deep there is a complete fracture of the crust extending into the sensitive lamina, in which case I would consider it an unsoundness; when superficial, however, horse may be considered sound.

Toe-cracks may be considered under the same head as quarter-cracks, the difference being the cracks occurring at toe. If crack extend through the full length of the hoof I would call it an unsoundness.

Navicular arthritis is a disease of the navicular joint. Opinions differ somewhat in regard to the point of origin; some place it in the perforans tendons, others on the gliding surface of the os navicular, and still others say positively it originates in the synovial bursæ; but that matters but little, and if the examining veterinarian's diagnosis is correct, he need not hesitate in pronouncing the animal unsound.

Keratoma, also termed *keratopholocene*, develops generally on the inner and anterior extremity of the wall of the toe at the white line, and may extend as high as the coronet, leaving a marked depression on the pedal bone. This is an unsoundness.

Contraction is a name applied when hoofs become narrow at heels, and is often associated with thrush and navicular arthritis. This is, in my opinion, an unsoundness.

Seedy toe may be termed *localized laminitis*. The wall becomes detached from the sensitive lamina, leaving a cavity, where we find a mealy deposit. It may appear at toe or quarter. For slow work such a horse may be all right, but I would be inclined to pronounce him unsound.

Corns are located at the bars or heels of the foot. If a bruise, it is termed "dry corn;" if suppurating, a "suppurative corn," involving the sensitive lamina, mostly seen in front feet. A suppurative corn is an unsoundness.

Thrush is a disease confined to the commissure of the frog, mostly seen in hind feet. If seen in front feet, look for some other disease. If front feet are affected, I consider it an unsoundness; if hind feet, not.

Laminitis, also known as *founder*, is inflammation of the sensitive lamina; whether the disease is acute or chronic, animal should be pronounced unsound.

Dropped sole generally occurs from the effect of laminitis; is a condition where the sole descends, and part of the os pedis rotates downward. Such an animal may perform slow work, but is unsound.

Canker is a morbid growth affecting the sensitive sole, frog, and walls; it is a chronic proliferation of the papillæ of the rete, producing a bad-smelling, greasy, yellowish-gray fluid, and is an unsoundness.

Quittors are fistulous tracts usually opening at coronet. We also have cartilaginous quittors affecting the lateral cartilage; sometimes the subcoronary tissue only is involved, but there may be several fistulous tracts, all involving sensitive laminae. This is, in my opinion, an unsoundness.

Discussion.

Dr. Quitman: In speaking about corns, the essayist remarked that a suppurating corn was decidedly unsound, but avoided corns in general. Does he consider a horse that seems to have corns, but does not go lame, as unsound?

Dr. Griener: I mentioned dry corns. I did not state whether they are

sound or not. If removable, the horse may be called sound. I would not consider nor pass any as sound, as it is hard to keep shoes on horses with corns.

Dr. Baker: I would like to know as to whether, in the absence of any soreness, a veterinarian is justified, with the view of simply looking for them, to pare away the hoof in the seat of a corn, assuming that there were no indications creating suspicion that there were any. I know some practitioners do make it a practice to pare away the hoof, with this object, in every case. If they find a discoloration they condemn the horse.

Dr. Quitman: I would say, as far as I am concerned, in examining a horse for soundness, I invariably examine the horse for corns, with a knife, paring the inner, and, in city horses, also the outer bar and sole. In my opinion, however, if a man is going to condemn a horse for corns he will have to condemn about three-fourths of the horses. Even country horses in the city will develop corns, caused by the hardness of the pavement or from the difference in the stabling. It depends upon the severity of the corn whether they should be condemned. I invariably, however, examine every foot for self-protection, if for nothing else.

Dr. Griiner: I would like to ask Dr. Quitman whether he takes the shoes off in making his examination; that is, if he has to examine a horse with shoes on?

Dr. Quitman: It depends upon the web and style of the shoe; also on general conditions. I often have the front shoes removed. If it does nothing else it impresses the client that I make a very careful examination. I make it a rule to point out every little blemish to the owner for my own safety. If the corn is of a deep purple color, and extends deeply between the bar and the wall, I reject the horse. If, however, the horse does not show any lameness or tenderness, I would, as a rule, pass him, although he has a corn. It depends mainly upon the discoloration, etc.

Dr. Griiner: Horses shod with rolling motion or rubber pads are, as a rule, unsound, and I would recommend particular care in examining such horses.

Dr. Quitman: Does the essayist consider a horse unsound having a Whitman and Barnes rubber shoe on?

Dr. Griiner: Not necessarily. I would examine him carefully, having his shoes taken off.

Dr. Robertson: I must confess that I have not been as particular heretofore in examining the feet for corns. I rely as a rule, on the external conformation of the wall and appearance of the foot in general. In my opinion, we are not supposed to pare into the sole of the foot, except we have just cause of suspicion, the same as we are not supposed to go into a bowel that may be weakened from some digestive trouble. External appearances will caution an experienced veterinarian for closer examination. Then he can use his own judgment as to the horse being sound or unsound.

Dr. Campbell: Would you reject a horse with a slight corn?

Dr. Robertson: That depends upon the conformation of the foot.

Dr. Hughes: Regarding the subject of corns, something like the subject of ringbone and many other conditions touched upon, we have to use a very considerable lot of judgment in passing it for soundness or unsoundness. In my opinion corns are not produced by the shoe, but by the method of the shoeing. We hear of horses from the country that have never been

shod having corns. However, this is an unreasonable statement. When a man runs across such a corn, it is merely an accidental bruise, or staining of a healthy quarter, and should be considered in my opinion as sound. Any corn that looks like a long-standing one should be pronounced as unsound. I would like to have the question of ringbone discussed to-night. In my opinion, the subject of ringbone in examination of horses for soundness will cause more annoyance than anything else. For instance, a heavy draught-horse five years old that is perfectly sound as far as his movements are concerned. When we come to examine his os corona we find on the posterior lateral aspect a marked angularity. The anterior as well as the internal lateral aspects are smooth. Is that horse sound? I hold that a man who finds a marked angularity at that point is perfectly justified in condemning the animal, as he will have a ringbone in the future. Anyone can determine a pronounced ringbone, but I would like to hear the opinion of the members, as undoubtedly they have come across such irregularities.

Dr. Baker: I think it is unjust that a horse with rough pasterns should be condemned. My experience has taught me that they are no more liable to develop ringbones than others, and therefore I think it is unjust to ourselves and to commerce to condemn a horse with rough pasterns, provided there is no thickening or other cause for ringbone. In regard to examination for corns, where there is no suspicion I do not pare away the hoof, nor do I condemn a horse with slight discoloration without any lameness.

Dr. Hughes: Regarding Dr. Baker's statement of angularity, I never condemn a horse that is all angular; but when I find a horse that has pronounced roundness of the joints and angular pasterns, I say there is something wrong, and reject the horse.

Dr. Merrillat: My experience regarding rough-jointed horses and rough pasterns is, that you will usually find a horse that has rough pasterns is not rough-jointed, and I fully believe that such a condition should be looked at with suspicion. I have examined more than eight hundred cavalry horses this last week, and condemned as many as forty with these enlargements, as I considered them as absolutely unsound.

Dr. Robertson: What is your opinion as to soundness of a horse with one foot smaller than the other?

Dr. Hughes: I think such a horse should be in every case rejected, as he will sooner or later, especially in the city, go lame, and invariably on the smaller foot.

GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

THE regular semi-annual meeting was held at the Livingston Hotel, Rochester, N. Y., on July 21, 1898. The meeting was called to order at 11 A.M., by the President, Dr. A. Drinkwater, of Rochester. At the roll-call the following members responded: Drs. A. George Tegg, L. R. Webber, E. Knight, and J. C. Mackenzie, of Rochester; O. B. French, Honeoye Falls; J. H. Taylor, Henrietta; N. N. Lefler, Geneseo; W. B. Switzer, Williamson; P. J. Johnson, Sodus; G. C. Kesler, Holly; Thomas Flood Gorham; and E. H. Nodyne, Clyde.

The minutes of the last meeting and the Treasurer's report were read and approved. Dr. William Hunter, of Dansville, was proposed and elected a member.

The Committee of Incorporation reported that the Association had been incorporated in accordance with the laws of the State governing incorporation of societies. They also exhibited a specimen of a membership certificate, which was accepted. Two very interesting papers were read by Drs. Switzer and Lefler, and several specimens were exhibited and cases reported, all of which led to a long and interesting discussion.

The following members are to prepare papers for the next meeting: Drs. Nodyne, Knight, Kesler, Drinkwater, and Mackenzie. The meeting then adjourned.

A. GEORGE TEGG,
Secretary.

MINNESOTA TO THE FRONT—A SUGGESTION.

THE veterinarians of Minnesota have recently adjourned one of the most successful State Association meetings that it has been the privilege of the writer to attend. For many years it seemed impossible to maintain a State association in Minnesota. Several were formed and soon failed. Perhaps the explanation of the success of our recent meeting may offer some points of interest and possibly suggestions for other associations that are struggling with the old problem of how to get veterinarians to join and attend.

Most of the veterinarians who attended our recent meeting at Faribault reached that city by 11 A.M., July 14th. We assembled at once, and routine business matters were all disposed of by noon.

The entire afternoon was given to clinical work. Dr. Hay, Secretary, who lives at Faribault, had prepared a splendid clinic, which kept us busy Thursday afternoon and Friday forenoon. The operations were distributed fairly and evenly among the members. The following operations were demonstrated at these two clinics:

Removal of molar and operation on inferior maxilla; three tendons fired by different operations; two cunean tenotomies by different operators; one urethrotomy with removal of calculus; four lower neurectomies; removal of shoulder fibroid; diagnosis of obscure lameness by means of cocaine; two caudal myotomies for straightening by different operators; removal of two nasal tumors; puncture cautery on two spavins by different operators.

We spent Thursday afternoon with the surgical work, and were all busy. During the evening we attended to the literary part of the programme, which was somewhat unique. There was nothing presented on this programme that could be called a formal paper, excepting possibly a report of the Committee on Infectious Diseases. The entire evening until eleven o'clock was spent in what might be called an experience meeting. Every member came prepared to report one or more experiences that might be of value to fellow practitioners. Unusual cases, mistakes in practice, errors in diagnosis, etc., were reported in abundance. Questions were asked, information given, and everyone went to the hotel shortly before midnight full of enthusiasm and thoroughly satisfied. After this formal adjournment quite a number of the members went to the office of Dr. Hay, Secretary, and spent several hours more, holding an informal session, discussing cases and experiences.

The following forenoon was devoted again to surgical clinic. As a rule, but one operation was on the programme at a time, so that everyone could get the benefit from personal observation and by questioning the operators.

All this surgical work was uniformly well done. This was especially noticeable in view of the fact that so large a number of operators took part.

The success of this meeting may give useful suggestions to other secretaries who would score success such as Dr. Hay has made for us.

I would not suggest this programme as one to be regularly followed, but I would draw attention to two points, viz., a large portion of the programme should always be practical, and there should be variety and something original and unique once in a while.

There are a great many intelligent veterinarians in each State who have a lively interest in corns and spavins, and do not care whether the hog-cholera bacillus is twin brother to the swine plague bacillus, or only a very distant relative, nor which one, if either, is motile. I would not underestimate the value of purely scientific papers, but let there be a limit and make programmes distinctly practical.

M. H. REYNOLDS, D.V.M.

St. Anthony Park, Minn.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

THE second semi-annual meeting of this Association was held at Faribault, Minn., on July 14 and 15, 1898. In the absence of the President, Vice-President Reynolds called the meeting to order at 11 A.M. at the Council chamber. Those in attendance were: Drs. W. Amos, Owatonna; J. J. Arnaud, Minneapolis; S. D. Brimhall, Minneapolis; C. C. Lyford, Minneapolis; B. A. Pomeroy, St. Paul; R. Price, St. Paul; J. N. Gould, Worthington; J. A. Hanish, Lake City; J. W. Gould, Fairmont; K. J. McKenzie, Northfield; M. H. Reynolds, St. Anthony Park; S. H. Ward, St. Cloud; H. C. Lyon, Hutchinson; James Nicholson, Pipestone; A. F. Lees, Red Wing; L. Hay, Faribault; George Milligan, Faribault.

The reports of the Secretary and Treasurer were read and adopted, and other routine business transacted, after which the members adjourned for dinner.

In the afternoon the members met at L. Miller's livery stable, where Secretary Hay previously gathered in a number of interesting surgical cases, which were operated on as follows: Removal of diseased molar and operation for dental fistula of the lower jaw, Dr. J. W. Gould, Worthington. Caudal myotomy for straightening crooked tail, Dr. R. Price, St. Paul. Caudal myotomy, Dr. K. J. McKenzie, Northfield. Cunean tenotomy, Dr. S. D. Brimhall, Minneapolis. Cauterization of tendons, Dr. L. Hay, Faribault. Cauterization of tendons, Dr. B. A. Pomeroy, St. Paul. Operation on horse's shoulder for the removal of a fibrous growth, Dr. M. H. Reynolds, St. Anthony Park. The meeting then adjourned until after supper, when it was called to order again about 8 P.M. Drs. Butler and Keyes, of Minneapolis, and H. C. Lyons, of Hutchinson, and James Nicholson, of Pipestone, were elected members of the Association, after which a number of interesting cases were reported by the different members.

Friday morning the members assembled again to witness the following clinical programme: Urethrotomy for removal of a cystic calculus, Dr. M. H. Reynolds, St. Anthony Park. Cunean tenotomy, Dr. R. Price, St. Paul. Cauterization of tendons, Dr. L. Hay, Faribault. Removal of sebaceous cysts, Dr. C. C. Lyford, Minneapolis. An adjournment for dinner was then taken.

Clinical work was resumed at 2 P.M. Excision of fibroid tumor, Dr. C. C. Lyford, Minneapolis. Lower plantar neurectomy, Dr. M. H. Reynolds, St. Anthony Park. This finished the clinical programme of the meeting.

A vote of thanks was tendered Dr. Hay, of this city, for the abundant clinical material secured and for the effort in making this the most successful meeting ever held in the State. A vote of thanks was also tendered to Mr. L. F. Miller, of this city, for his courtesy in supplying suitable quarters for the holding of the clinics, and also to the proprietor of the Commercial Hotel for his hospitality and courtesy to the members of the Association. The meeting then adjourned.

L. HAY, V.S.,
Secretary-Treasurer.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

TITLE of papers to be read at the annual meeting, September 14 and 15, 1898, at the Hotel Metropole, Forty-second Street and Broadway, New York City: "Glanders and its Relation to Mortality," Dr. James Law, New York State Veterinary College; "Nail Wounds of the Feet in Horses," Dr. Roscoe R. Bell, American Veterinary College; "Notes on Tooth Tumors," Dr. W. L. Williams, New York State Veterinary College; "Osteoporosis," Dr. George Berns, Brooklyn, N. Y.; "The Science *versus* the Art of Veterinary Surgery," Dr. Robert W. Ellis, New York City; "Hydrotherapy in Domestic Animals," Dr. W. L. Williams, New York State Veterinary College; "A New Treatment of Milk Fever," Dr. Olaf Schwartzkopf, Flushing, L. I., New York; "Streptococcus Injection in Domestic Animals," Dr. V. A. Moore, New York State Veterinary College; "Some Experiments with Antiseptics," Dr. P. A. Fish, New York State Veterinary College; "Notes on the Embryology of Domestic Animals," Dr. Simon H. Gage, New York State Veterinary College; "Relation of the Ligamentum Nuchæ to the First Cervical Vertebra in the Horse," Dr. G. S. Hopkins, New York State Veterinary College; "A Simple Test for the Detection of Albumin in Urine," Dr. P. A. Fish, New York State Veterinary College.

MISSOURI VALLEY SOCIETY PROCEEDINGS.

THE Iowa State Veterinary Medical Association will hold a joint meeting with the Nebraska State Association on Monday, September 5, 1898, the day before the convening of the U. S. V. M. A., and possibly the Missouri Valley may meet with them. The annual meeting of the Iowa Association will be held in Des Moines in the fall or winter. Officers of this Association are as follows: President, S. H. Johnson, Carroll; Vice-Presidents, G. W. Scott, Independence, and D. G. Parslow, Marshalltown; Secretary-Treasurer, John E. Brown, Oskaloosa. Delegates to U. S. V. M. A. meeting, Drs. P. O. Koto, Forest City; H. E. Talbot, Des Moines. Board of Censors, Drs. W. H. Austin, Newton; D. H. Miller, Harlem; J. H. McLeod, Charles City.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

Officers—President, S. E. Bennett; First Vice-President, R. C. Moore; Second Vice-President, J. C. Milnes, Kansas City, Mo.; Secretary and Treasurer, W. A. Heck, South St. Joseph, Mo.

The Missouri Valley Veterinary Association fixes its place of annual meeting at Kansas City by insertion in their by-laws. Its membership territory covers a radius of seventy-five to one hundred miles. At present its membership reaches St. Joseph, Mo., on the north, Galena, Kansas, on the south, from Eldorado, Emporia and Concordia, Kansas, on the west, to Chillicothe and Clinton, Mo., on the east, with an occasional member along the valley farther away.

From time to time the drift of thought has given consideration among a number of the more ambitious veterinarians of the West toward the creation of a Western veterinary association composed of the Dakotas, Minnesota, Nebraska, Iowa, Kansas, Missouri, Oklahoma, and other States. The proposition will be further considered at Omaha.

ASSOCIATION OF VETERINARY FACULTIES OF NORTH AMERICA.

SECRETARY GILL has sent out the programme for this meeting.

A special committee will report on the advisability of forming a National Examining Board, co-operation with State associations, the securing of more uniform laws, the standard of requirements to be established by the boards rather than by fixed laws, the interchange and recognition of certificates where satisfactory requirements exist.

Dr. D. E. Salmon of the Columbian University Veterinary Department, will consider the subject of "Uniform Standard of Entrance Examination."

The value and need of an Interstate Examining Board whose certificate would be accepted by the boards of all States will be considered by Drs. W. Horace Hoskins, for Pennsylvania; James Law, for New York State; A. W. Clement, for Maryland; H. J. Detmers, of Ohio; F. H. Farmer, of North Dakota; Charles McCulloch, of Virginia, and M. H. Reynolds, of Minnesota.

A proposition will be acted upon of admitting members of State Examining Boards to the Association of Faculties.

President Pearson expects an unusual interest and attendance and the thorough consideration of many problems connected with higher veterinary education.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

THE Pennsylvania State Veterinary Medical Association will hold its semi-annual meeting at Pittsburg on September 20, 1898.

Secretary Rhoads reports an interesting programme and indications of a large attendance.

Dr. J. C. McNeil, of Pittsburg, with a number of other veterinarians of Allegheny County, will look after the welfare of those in attendance.

President Jobson expects a large attendance of Western members, and the better practice among veterinarians will be largely conducive to this end.

Many veterinarians in the western part of the State not identified in membership should be applicants at this meeting.

Those from the eastern part of the State will find an available ticket for this meeting in the thousand-mile book of the Pennsylvania Railroad, issued at two cents per mile, good for one year over any of the branch roads.

A party ticket for ten may be obtained from Philadelphia at two cents

per mile, making the cost going and coming \$14.16. To secure this favored rate all must go and come at the same time.

The 8.30 A.M. train by the Pennsylvania Railroad reaches Pittsburg in time for supper. The 8.50 P.M. train arrives in time for breakfast the following morning. The 12.25 P.M. train reaches Pittsburg at 11 P.M. The 10.20 P.M. train arrives at 8 A.M. the following morning. Those desiring the trip by day should take the 8.30 A.M. or 12.25 P.M. The evening trains have sleeping cars attached, and the train leaving 10.27 P.M. is open for the reception of passengers an hour earlier.

Many matters of the greatest importance will be taken up, and all are assured of a good time.

U. S. V. M. A.

Many fresh specimens from the slaughter-houses of Kansas City will be shown in connection with the consideration of meat-inspection.

The joint meeting of the Nebraska and Iowa State organizations at Omaha will be purely social in character.

The members of the Nebraska Association will furnish the clinical material for the meeting at Omaha.

Dr. James Law will contribute to the discussion of the subject of "Meat-Inspection."

Drs. Joseph Hughes, of Chicago, and John W. Connoway, of Columbia, Mo., will contribute papers to the meeting not down on the programme.

Mr. Charles R. Squibb, of Brooklyn, will offer a paper of much moment and importance for the consideration of those present.

A very large Western attendance is indicated. Better times, brighter hopes and prospects are aiding the meeting.

The clinical features of the meeting, with practical demonstrations, should prove an interesting and instructive portion of the convention's work:

"Caudal Surgery," by Dean Gill, of the New York College of Veterinary Surgeons.

"Ovaryectomy in the Mare and Other Animals," by Prof. Williams, of the New York State Veterinary College.

"Extraction of Teeth and Other Dental Operations," by Prof. Merillat, of the McKillip Veterinary College.

"Casting and Confining Animals," by Dr. Tait S. Butler.

The New York State Veterinary Medical Society will meet in New York City the week following the U. S. V. M. A. Convention

The Pennsylvania State Veterinary Medical Association will meet at Pittsburg on September 20th. A cordial invitation is extended to every veterinarian in Pennsylvania, Ohio, New York, Virginia, Maryland, and West Virginia, and they will be made very welcome.

The Keystone Veterinary Medical Association of Philadelphia and vicinity will meet at the usual place on Friday evening, September 16, 1898. This date has been selected so as not to conflict with those of the United States and State meeting dates.

A special meeting of the Alumni Association of the American Veterinary College will be held on September 22, 1898, at 3 P.M., at the College Building, for the purpose of taking the preparatory steps for a reunion of the alumni on the twenty-fifth anniversary of the College, in 1900. The President earnestly requests a full attendance that a proper celebration of this important event in the College's history may be consummated.

AMONG THE COLLEGES.

KANSAS CITY VETERINARY COLLEGE.

THIS college was chartered in 1891, and while it started in a humble way as a private institution, its curriculum has been gradually broadened, until now it covers nearly, if not entirely, the full field of veterinary science. While its classes have been small their quality has continued to grow better, owing to an increased higher standard of matriculation examinations. During the college year of '97 and '98 some twenty-three students were in attendance. All of the freshmen class last year presented credentials of one or more terms of training in high schools. This preliminary school training is reported to have been most manifest in the excellent work done by the students and high grades obtained in final examinations.

The seventh annual commencement exercises of this college were held at the Midland Hotel, Kansas City, Missouri, on Thursday, March 31st at 8.30 P.M. The degree of D.V.S. was conferred upon the following students: William N. D. Bird, John D. Cooper, Charles H. Davies, M.D., W. W. Johnston, M.D., and James Otterman, M.D. At the banquet Dr. C. J. Sihler presented the diplomas, the class response being delivered by Dr. W. W. Johnston. Dr. S. L. Brooking acted as toast-master; the following toasts were responded to: "Our Faculty," Dr. S. Stewart; "Medical and Veterinary Profession," Dr. I. J. Wolf; "The Veterinary Microbe," Dr. O. W. Krueger; "The Medical Man as a Fighter," Dr. Leon Rosenwald; "The Veterinarian's Place in Society," Dr. Geo. A. Johnson.

The college hospital affords a large clinic, where the students receive practical instruction in diagnosis, prognosis, and treatment. The location of the college in one of the great Western packing centres has afforded special opportunity for studies in meat-inspection, and it is to be noted that of the five graduates of March 30, 1898, the college calendar indicates that they are all employed by the Bureau of Animal Industry as meat-inspectors. The school seems to be specially favored in this direction by location and the fact that a large number of the instructors are engaged in this special work.

The school maintains a three-year graded course, and announces its compliance with the spirit as well as the letter of the agreement of those composing the Association of Veterinary Faculties establishing a minimum standard of requirements for all veterinary colleges, and the requirements for candidates for membership in the United States Veterinary Medical Association.

Of the forty-five graduates of the college, eleven are now employed in

the Bureau of Animal Industry. The following changes in the governing board and staff of teachers have been made for the ensuing year:

Changes in Faculty. E. J. Lutz, M.D., has severed his connection as Director of Histological and Pathological Laboratories. Richard J. Blanch, D.V.M., succeeds Sidney L. Hunter, D.V.S., as instructor in materia medica and therapeutics. O. W. Krueger, M.D., will teach histology, and J. C. Milnes, V.S., canine pathology. Charles H. Davies, M.D., D.V.S., will teach comparative anatomy in place of Frederick W. Hopkins, V.S. W. Ross Cooper will lecture on breeds and breeding, in place of U. B. McCurdy, D.V.S. Thomas W. Carnahan, M.R. C.V.S., will instruct in physical diagnosis and examination for soundness, succeeding W. A. Heck, D.V.M. Don W. Patten, D.V.M., as demonstrator of anatomy, succeeds Leslie J. Allen, V.S.

The following text-books have been added: *Obstetrics*, Dalrymple; *Foods and Feeding*, Henry; and as reference-books: *Parasites*, *Reports of Bureau of Animal Industry*; *Lameness and Shoeing*, Hunting; Adams' translation of *Lungwitz*; *Dictionary*, Duane.

CHANGES IN INDIANA VETERINARY COLLEGE.

Officers—S. E. Crosse, A.M., M.D., succeeds as President E. H. Pritchard, V.S. Dr. Crosse is also Dean of the Faculty. In the Board of Trustees Thos. Gaddes, M.D., V.S., succeeds T. L. Armstrong, D.V.S., J. A. Mullan being added to the Trustees. In the teaching staff W. P. Garshwiler, M.D., Professor of Physiology, fills the place of John F. Geis, M.D.; the latter will fill the chair of Histology and Microscopic Pathology, formerly taught by E. H. Pritchard, V.S. John F. Roe, D.V.S., will teach Cattle Pathology and Contagious Diseases; F. A. Mueller, Ph.G., V.S., becomes Professor of Materia Medica and Therapeutics in place of A. J. Mullan, Ph.G., M.D. Dr. Mueller was formerly Professor of Pharmacy and Pharmaceutical Chemistry. E. H. Pritchard, V.S., resigned, was also Professor of Meat- and Milk-inspection and Contagious Diseases. The chairs of Pharmacy and Pharmaceutical Chemistry and of Meat- and Milk-inspection, and Demonstrator of Anatomy are provided for in this year's work by special lectures. As lecturers P. O. O'Rear, D.V.S., will teach Veterinary Dentistry in place of John F. Roe, D.V.S., and lectures on meat- and milk-inspection will be given by John F. Roe, D.V.S. Lectures on Pharmacy and Pharmaceutical Chemistry by F. A. Mueller, Ph.G., V.S. F. C. Becker, M.D., lecturer on Bacteriology, has severed his connection, and this course is placed under the lectures of Reginald W. Garstang, M.D., who formerly lectured on general pathology and morbid anatomy.

As a text-book *Meat-inspection*, by Walley, has been added.

CHANGES IN McKILLIP VETERINARY COLLEGE.

Faculty and Officers—John B. Boomer, M.D.V., has been installed as Instructor of Veterinary Pharmacy.

Associated with clinical work connected with the college there have been added I. D. Rawlings, M.S., M.D., as Consulting Bacteriologist, and Leo. Thurlimann, M.S., Analytical Chemist. Several new text- and reference-books have been added to the list of books recommended.

AMERICAN VETERINARY COLLEGE.

Regents—*Ex-officio* Frank S. Black, B.A., Governor, succeeds Levi P. Morton; Timothy L. Woodruff, M.A., Lieutenant-Governor, succeeds Charles B. Saxton, LL.D. Additional election by the Legislature—Chester S. Lord, M.A., Brooklyn, N. Y. Added to the Director of Departments—James Russell Parsons, J.M.A., Examination Department, and F. H. Merrill, Ph.D., State Museum.

Governing Faculty—H. H. Rawlings, B.S., succeeds L. H. Friedberg, Ph.D., as Professor of Chemistry and Toxicology.

Adjunct Faculty—Olof Schwarzkopf, V.M., becomes Professor of Surgical Pathology and Practical Microscopy; H. B. Ferguson, Ph.G., Phar. D., succeeds H. H. Rusby, M.D., as Professor of Botany. George C. Beckett, D.V.S., M.R.C., V.S., as Lecturer on Bacteriology; also H. Neher, D.V.S., as Clinical Professor of Veterinary Medicine and External Forms of the Horse, and Allen S. Heath, M.D., V.S., as Professor of Hygiene, Breeding Zootechny, have severed their connection with the teaching staff. R. W. Ellis, D.V.S., has been added as Lecturer on Obstetrics.

In the American Veterinary Hospital in connection with this college, E. F. Sanford, D.V.S., succeeds Roger Twombly as Assistant House Surgeon. H. Neher, D.V.S., has been added as one of the Visiting and Clinic Veterinarians.

Text-books and Books of Reference—*Dog Practice*, by Alexander Glass, V.S., has been added in place of that by J. Woodroffe Hill. Chemistry, have added Attfeld's *General and Pharmaceutical Chemistry*, also Robert Friedberg's. *Surgical Pathology*, have added Gottheil's (in preparation). *Exterior of the Horse*, have added Percival's. Botany: Gray's *Lessons* in place of Rushby and Jelliffe's *Essentials*.

VETERINARY DEPARTMENT IOWA STATE COLLEGE OF AGRICULTURE AND MECHANICAL ARTS.

THIS institution is located a mile and a half from the town of Ames, on a farm of nine hundred acres, the buildings being located in a beautiful park embracing more than a hundred acres. A motor line furnishes ready communication between the college buildings and the railway station in town. This college gives a three-years' course of six terms of seventeen weeks each. It is endowed, and thus is rendered independent of the fees. A thorough course of instruction has been adopted, embracing the most approved methods of theoretical and practical teaching.

Changes have been made for 1898 as follows: On Board of Trustees, Hon. W. J. Dixon, Sac City, succeeds Hon. H. C. Wheeler, Odebolt. Faculty—J. E. Bingham, Lecturer on Lameness and Principles of Shoeing, succeeds F. B. McCall, D.V.M.; C. F. Curtis, M.S.A., Professor of Principles of Heredity and Animal Nutrition, succeeds Hon. James Wilson; M. F. Patterson, M.D., succeeds A. R. Amos, M.D., Lecturer on Ophthalmology; W. B. Lincoln, D.V.M., House Surgeon and Demonstrator of Anatomy, succeeds L. L. Lewis, D.V.M.

The department library numbers over 200 volumes, selected with special reference to the instruction given in veterinary science. The general college library numbers about 9300 carefully selected volumes.

WESTERN VETERINARY COLLEGE.

The Western Veterinary College, located at Kansas City, Mo., opened its doors in the fall of 1897, and graduated its first class of students, numbering five, in the spring of this year (1898).

Drs. J. H. Wattles and son, the senior being formerly connected with the Kansas City Veterinary College, are the prime movers in the new institution.

The announced Faculty for 1898-99 is composed of some eleven veterinarians and two practitioners of human medicine. In its opening announcement it says: This is a two-year school, and as such has no favors to ask and no apologies to make. In its preliminary announcement of 1897 it promised to be a three-years school and to in every way adhere to the requirements demanded by the U. S. V. M. A. and the Association of Faculties. It promises a rigid adherence to its roster of instruction by the entire-named Faculty.

The degree of doctor of veterinary science is conferred, and the lectures and examinations cover six months, from October 1st to March 31st.

A "Stockman's Course" is inaugurated, intended to partially educate men who purpose following stock-raising or dairy interests. This covers but one session.

A common-school education covers the entrance requirements. College fees are \$75 per year, except to graduates of other colleges, who are required to pay but \$50 per year.

Western veterinary colleges report an exceptionally large number of applicants for catalogues, and prospective students.

PERSONALS.

Dr. William H. Kelly, of Albany, N. Y., expects to join the JOURNAL special at Chicago.

President D. E. Salmon, of Washington, D. C., will join the JOURNAL special at Harrisburg, Pa.

Mr. Harold Sorby, of the Pasteur Vaccine Company, will join the JOURNAL special over the Burlington Route from Chicago to Omaha.

Dr. Frank P. Shannon, Assistant Inspector at Fort Worth, Tex., has been transferred to Los Angeles, Cal. Dr. John A. Kiernan, of Chicago, to Fort Worth, Tex. Dr. Frank C. Eels, of Brownsville, Tex., to the National Stock Yards, Chicago, Ill. Dr. James Keely has been sent to Brownsville, Tex.

Dr. M. E. Conard's (West Grove, Pa.) paper on "What our Dairy Cows Inherit," was published in a July number of *The Jersey Bulletin*, and criticised by the editor of that breezy publication.

Dr. H. Bowen, of Mount Gilead, O., is at present deputy sheriff of Morrow County.

Messrs. Waugh, Jennings, and Kingan, of Pittsburg, will be more alert in the future as to calls by a special messenger who has come to town and finds himself unexpectedly short in funds and secures temporary loan.

Dr. A. W. Bitting, of Purdue University, Ind., is out in a bulletin on the importance of car and transportation as well as pen disinfection in livestock shows, especially to lessen the danger of transmission of hog-cholera and swine-plague.

Dr. John W. Adams spent a portion of July quietly resting at Warsaw, N. Y., accompanied by his family.

Dr. James W. Sallade, of Pottsville, was a professional visitor to York, Pa., in July.

Dr. John E. Spindler, graduate of the Veterinary Department of the University of Pennsylvania, class of 1898, has located at Tyrone, Pa.

Mr. R. A. Pearson, of the Dairy Division, Department of Agriculture, was a visitor to Philadelphia for a week in July.

Dr. Ray J. Standliff, who recently graduated at the New York State Veterinary College, has returned to Americus, Ga., to practice.

Dr. W. E. A. Wyman has resigned his position as Professor of Veterinary Science at the Clemson Agricultural College, S. C., and entered upon private practice at Milwaukee, Wis.

Dr. A. G. Van Tine, of Millgrove, has returned to Clarence, N. Y.

Dr. George W. Turner, formerly of Highwood, Ill., now with the United States Army at camp George H. Thomas, Chickamauga, Ga., is called "Chief Veterinarian of the Camp," a recognized honor, not by commission.

Dr. Leonard Pearson included in his foreign trip a visit to Berlin and Bremen, Germany. While in Paris he was for a time the guest of Prof. A. Liautard, who now makes his home in "Sunny France."

M. A. Francis, State Veterinarian of Texas, was a visitor to Ohio in August, and contemplated extending his visit to the East.

The Rochester, N. Y., branch of the Horseshoers' National Protective Union issued some five diplomas of proficiency to as many young shoers in August. Dr. J. C. McKenzie, a member of the U. S. V. M. A., is the active spirit of this branch of the organization, and as instructors in the school of farriery conducted there he was favored with the assistance of Drs. Leroy M. Webber and A. Drinkwater.

Dr. A. S. Alexander, of Evanston, Ill., was a contributor the August 3d number of the *Breeders' Gazette* on the "Care of Unshod Feet."

Dr. M. E. Knowles, of Helena, Mont., takes a keen interest in the breeding and development of trotting horses.

Veterinarians William H. Kelly, of Albany, and V. A. Moore, of Ithaca, N. Y., have been investigating for the State reported outbreaks of symptomatic anthrax, tuberculosis, and hog-cholera at Middleville, Jordanville, and Saratoga, respectively.

Dr. T. J. Shinkwin, graduate of Harvard Veterinary Department, has recently been assisting Dr. M. O'Connell, of Holyoke, during the latter's illness.

Dr. Harry Walters, of Wilkesbarre, Pa., was a sojourner at Manhattan Beach for a short period early in July, and a visitor to Philadelphia.

Dr. F. K. Nice, of Philadelphia, has become the proprietor of the Tioga Veterinary Hospital.

Dr. L. Van Es, of Mobile, Ala., conducts a veterinary hospital in connection with his practice.

Dr. B. J. Senseman, of Philadelphia, was a sojourner at Atlantic City for a week in August, nursing an injured limb, the result of a kick from a mule.

Dr. C. L. Megowan holds the position of city milk-food-, and market-inspector for Sacramento, California.

Dr. John W. Adams, of Philadelphia, spent some two weeks in August in Western Pennsylvania on special work of the State Live Stock Sanitary Board.

Dr. T. E. Maloney, formerly of Boston, who has been in the Western quarantine service for some months past, has been transferred to his former place and home.

Dr. W. H. Mattson, of Camp Ground, Pa., examines all the cattle and dairies furnishing milk to the creamery producing the famed P. E. Sharpless butter.

Dr. George R. Jobson, of Franklin, Pa., was recently appointed to the meat-inspection force of the Bureau of Animal Industry and assigned to duty at Chicago.

Dr. C. W. Boyd, of Allegheny, Pa., has been resting at the famous seaside resort, Atlantic City, N. J., for a period.

Dr. William Jobson, of Franklin, Pa., having taken the degree of M.D. at the Medical Department of the Columbian University, has recently accepted the position of physical director of the Young Men's Christian Association Gymnasium at Franklin.

Dr. Edward M. Ranck has removed from 4025 Market Street to 427 North Forty-first Street, and A. W. Ormiston from 19 Levering Street, Mt. Airy, to 6219 Germantown Avenue, Philadelphia.

Dr. J. P. Turner, recently of the United States Inspection Service at St. Louis, Mo., has received the appointment of Dairy Inspector for the District of Columbia. He succeeds Dr. C. Barnwell Robinson, who has filled this position for the past three years.

Dr. A. W. Bitting's paper on "A New Photo-micrographic Apparatus," presented to the Indianapolis Academy of Science, has appeared in bulletin form.

Veterinarian James Jefferson Reitz, of Pennsylvania, and Eckley Storrs, of Willimantic, Conn., are students of the second year at the Jefferson Medical College of Philadelphia. Dr. Alexander Glass, of Philadelphia, is among the special students.

Dr. W. R. Smith, graduate of Veterinary Department of Harvard University, class of 1898, has located at West Brookfield, Mass.

Dr. Cooper Curtice, of Moravia, N. Y., has recently been engaged in special work for the New York State Board of Health at the Buffalo Stock Yards.

Lieutenant-Colonel R. S. Huidekoper, one of the editors of the JOURNAL, sailed for Porto Rico from Newport News, Va., on July 26th, as Chief-Surgeon of the First Army Corps.

Dr. W. F. Smith, of Amsterdam, N. Y., fills the rôle of veterinarian to the Hurricana Stud Farm.

Dr. J. C. McNeill, of Pittsburg, Pa., was a visitor to Philadelphia in July and a sojourner at Atlantic City for a short stay.

Dr. A. L. Baum, of Telford, Pa., was a visitor at the Veterinary Department of the University of Pennsylvania in July.

POINTS.

The granting by the Government of large quantities of black-leg vaccine indiscriminately to stockmen, we learn, has been discontinued, and its dangers and injustice to veterinarians fully appreciated.

A yearling ram of the Lincoln breed recently sold for \$5000 and fifty-two yearling rams averaged \$435 each. Surely an astounding value in sheep, and points the way to broader instruction in our colleges that will afford a better knowledge in ovine pathology.

Over 500,000 head of cattle have been treated with the Pasteur vaccine for "black-leg" during the past two years, and the estimated saving made is said to amount to five millions of dollars.

A case of docking is running through the Pittsburg courts, inaugurated by the Western Humane Society. The removal of the tails was done with the docking-knife and searing-iron by employés of the person charged with the act. Drs. Rectenwald, Waugh, Carter, and Richards were called as veterinarians for the Humane Society to testify as to the cruelty of the operation done in this manner.

Veterinarians of Kansas are doing much successful work in vaccination for symptomatic anthrax (black-leg) and for malignant anthrax, with very gratifying results.

PRACTICE FOR SALE.

A well established \$3,500 practice for sale, in a town of 20,000 inhabitants, with several stock farms and good dairy and farming country surrounding. The only qualified Veterinarian in the county. Reason for selling, ill health. This practice is located in Pennsylvania. Would like to sell to some one who would take possession immediately. Address

**"M," care of Journal Office,
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PRESIDENT'S ADDRESS.¹

By D. E. SALMON, D.V.M.,

CHIEF OF BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.

THE welcome that has been extended to this Association by the great city of Omaha, and the prospects for a large attendance of members and other representative veterinarians, give promise that this thirty-fifth annual meeting will be one of the important historic points in the life of our organization. Within the remembrance of some who are now present the veterinary profession has developed from an apparently insignificant beginning in a few of the Eastern cities until now its representatives are found in all sections of the country. There could be no better demonstration of this fact than the gathering here on the banks of the Missouri River of the many gentlemen from the East and from the West, from the North and from the South, who will contribute to the interest and success of this meeting.

As the Executive of this Association, I congratulate you upon the knowledge which we have just acquired, that we can meet here in what many of us have considered a far Western city, and not only receive a cordial greeting, but find ourselves surrounded by sympathetic members of our own profession. And I congratulate the citizens of this great State that there are located here so many competent veterinarians whose lifework it is not only to prevent and cure the maladies of the domesticated animals, but to guard the health of the people from the many diseases which they may acquire by contact with such animals or by consuming as food the various kinds of animal products. The veterinarian has evidently made a place for himself on these fertile prairies, where horses,

¹ Read before the Thirty-fifth Annual Meeting of the United States Veterinary Medical Association, Omaha, Nebraska, September 6, 1898.

cattle, sheep, and swine multiply in such profusion and develop in such perfection; but he has just begun his work, and the more his plans develop, and the better his efforts and aims are understood, the more will he be esteemed and appreciated. In the closing years of this century, which has been so wonderful in scientific progress and achievement, there is nothing more remarkable than the influence which the study of animal diseases has had upon the advancement of human medicine and the resources which the investigators of this subject have laid at the feet of suffering humanity. The elucidation of the nature of contagion; the establishment of scientific disinfection; the development of aseptic surgery; the introduction of bacterial products, vaccines, animal extracts, and antitoxins for the treatment of various diseases are well-known examples.

THE MICROBES OF CONTAGIOUS PLEURO-PNEUMONIA.

The study of the contagious pleuro-pneumonia of cattle has during the past year revealed a realm of life beyond the reach of the most powerful microscope. For years pathologists have searched for the microbe of this disease without success, and now we learn that their failure was largely due to the fact that this microbe is so extremely small that even the perfect microscopes of the present day are not sufficient to enable the observer to make out its form and dimensions. The ingenious methods of investigation which were adopted in these researches appear to be free from flaws, and we must, therefore, accept the fact that there are living organisms far more minute than have heretofore been recognized, and that, indeed, there is a world of life that the microscope is powerless to reveal, just as we have long known of a world that our unaided vision could not detect.

The bearing of this discovery upon future researches is manifest. There are still numerous communicable diseases of which the active cause has escaped the search of our most able investigators. We have here another clew to these problems, and without doubt they will all finally be resolved by the perseverance and resourcefulness of the modern student.

VARIATIONS OF TUBERCLE BACILLUS.

The discovery by Dubard of tuberculosis in fish has served to broaden our views concerning this most interesting and destructive panzoötic disease. From a study of the bacillus of mammalian tuberculosis we learned that this microbe requires for its multiplication a temperature between 86° and 104° F., and we concluded

from this fact that this germ is an obligatory parasite, unable to multiply outside of the animal body except under special conditions furnished in the laboratory. Later it was discovered that in the tuberculosis of birds, or avian tuberculosis, the bacillus had undergone a remarkable physiological modification, and that it is able to grow all the way from 77° to 113° F.—that is, instead of being confined to a temperature range of 18° F., as is the case with the mammalian bacillus, it has in the avian variety acquired the power to multiply through a temperature range of 36° F. The doubling of the temperature range and the ability to multiply at a point nine degrees lower on the scale have an important signification; for, whereas a continued temperature of 86° F. is difficult to realize in nature, 77° F. for days and nights in succession are not infrequent in many parts of the country. Already the question was suggested as to whether it is not possible for the bacillus tuberculosis to live and multiply in nature as a saprophyte.

Dubard's discovery of tuberculous carp, the bacillus from which is able to grow from 50° to 96.6° F., is still more astonishing, and opens a field of possibilities so extensive that it is safer to wait for the positive results of investigations than to speculate as to what may or may not be true. The facts already established are, however, most important. A bacillus which can vegetate at 50° F. can live as a saprophyte without difficulty, if it finds a proper food supply.

The first question that suggests itself is as to the identity of these bacilli, which are so frequent in their physiological requirements. Are the mammalian bacilli, the avian bacilli, and the piscine bacilli but varieties of the same species, convertible from one to the other, or are they specifically distinct? The researches which have already been made appear to warrant the conclusion that the avian and piscine bacilli may be given all the characteristics of the mammalian form by growing them for a sufficient time under proper conditions. Indeed, Dubard is of the opinion that the carp were infected by throwing into the stream in which they lived the excreta and sputa of a human patient affected with pulmonary and intestinal tuberculosis.

Wide, therefore, as is the gulf which separates the cold-blooded carp from the mammalia, or the latter from the hyperthermic birds; remarkable as are the morphological and physiological differences shown by the bacilli from these different sources, we are forced to the conclusion that these differences are superficial, that they vary with the conditions of environment, and that the tuberculosis of the fish, the mammal, and the bird is one and the same disease.

Accepting this conclusion, that the mammalian bacillus may under certain conditions infect fish and be so modified that it has the vigor to grow at a temperature of 36° F. lower than before, and that, on the other hand, it may infect birds and be so modified as to grow at a temperature 9° F. higher than before, should we not be conservative in adopting the views recently promulgated to the effect that the bovine and human bacilli are different varieties and that the human bacilli are incapable of affecting cattle? This question is one of great importance to the sanitarian, and will no doubt receive your most careful consideration.

RECENT PROGRESS IN THE CONTROL OF ANIMAL DISEASES.

Much has recently been accomplished in improving and adding to the methods available for the control of a number of our worst plagues. It is not many years since Texas fever was one of the most dreaded diseases, both on account of its destructiveness and of the mystery connected with its origin and dissemination. At last this mystery has been cleared away, and we are to-day in a position to formulate more efficacious regulations for preventing this disease than is possible in connection with most others. By regulating the traffic in cattle from the infected district during the warm season of the year; by allowing them to be moved by rail only and for immediate slaughter during that season; by segregating such cattle and disinfecting the cars in which they are transported, the losses from this disease in the Northern States have been reduced to an insignificant amount.

There, however, remained other problems pressing for solution. In the vast district in which this contagion is enzoötic, comprising practically the entire area of six great States and one Territory, more than half the area of four other States, and important sections of two additional States and one Territory—in this extensive district vast numbers of young cattle are reared to be sold for grazing. It is very difficult, as you will understand, to confine the shipment of these animals to the short period of two months in the winter season. The magnitude of the interests involved is a continual menace to the quarantine regulations. Fortunately, we can now see our way to disinfecting these cattle so that they can be safely shipped anywhere, at all seasons of the year, without conveying the contagion to other animals.

Although these Southern cattle carry the microbe of the disease in their blood for months and years after they leave the infected district, nature has beneficently provided that under ordinary con-

ditions it can only cause disease when transferred to other animals by a single species of external parasite—the Southern cattle-tick, *Boophilus bovis*. With this fact demonstrated, it only remained to discover a practical method of destroying these ticks upon the Southern cattle at the time they passed out of the infected district. This, however, was much easier to propose than to accomplish. Many preparations have been suggested, and it was reported that one of these when tried killed the ticks immediately and the cattle in fifteen minutes. Other mixtures had no effect upon either the cattle or the ticks. It may now be said, however, that in extra dynamo-oil and sulphur we have a dip which kills the ticks with so little effect upon the animals that it can neither be objected to on the ground of financial loss nor cruelty. There may be and doubtless will be further improvements made in the composition of the dipping-mixture used for this purpose, but the point to be emphasized is that we *already* have a dip which may now be successfully used for this purpose.

There is but one other practical problem connected with the prevention of this disease, and that relates to the immunization of cattle that are taken into the infected district. You all know that the cattle of that district are immune, otherwise they would contract the disease and die. Doubtless they obtain their immunity by undergoing a mild attack of the disease while they are young, and if so, why should we not follow the way pointed out by nature, and artificially infect young animals that are destined for the Texas-fever district? This has been successfully done, and it has been shown that the artificially immunized animals were able to resist the disease when taken to the infected section of the country. The principle is thoroughly demonstrated, and it only remains to work out the details of the method by determining the variations which are required according to the age and breed of the animals and season of the year. We may, therefore, claim with complete justice that the veterinary profession of the United States has not only explained the mysteries of Texas fever, but that it also offers adequate means for the prevention of this disease.

The infectious diseases of swine have long caused such enormous losses that the swinegrowers have been discouraged and many of them financially ruined, while even the Federal Government has been greatly concerned on account of the destruction of property and the menace to an important item of the food-supply and of the export trade. Veterinary science has had much to contend with before it could offer a practical and efficient solution of the prob-

lem of preventing these losses. It was necessary to consider the vast number of animals liable to the disease and the great extent of territory over which they are distributed; also, the relatively small value of each individual, and the fact that the losses are caused by two distinct diseases, each of which requires its own specific treatment, while the symptoms are so obscure that it is difficult in the field to distinguish one from the other.

Hygienic surroundings, isolation, disinfection, medical treatment, inoculation, and vaccination were all tried without satisfactory results. In individual cases benefit was undoubtedly derived from the intelligent application of these measures; but the proportion of failures was too great, the success was too uncertain, and, as is to be expected under such circumstances, no general and systematic efforts were made.

Last year some experiments were conducted with the stamping-out system—that is, by killing diseased and infected animals with a view to arresting the multiplication of the contagion. It was shown by these experiments that it is possible to greatly reduce the losses by this radical method; but it requires a large force of men to find all the infected herds in even a single State; it requires a vast sum of money to compensate for the slaughtered animals; and, worse than all, the enforced slaughter and quarantine develops an opposition fatal to the rigid prosecution of this plan of operations over a large extent of territory.

There remained but one resource to which we could turn with hope in the present condition of science. That is the use of anti-toxin serum. The researches made in this direction have shown that it is possible to produce a serum that will immunize animals to both of these diseases and that will also cure both. This treatment was first tried with small animals, such as rabbits and guinea-pigs, in the laboratory, and being successful there, was tested late last year with herds of infected swine. Of about 250 animals in infected herds, over 75 per cent. were saved, while in herds not treated 85 per cent. died. This year the results with about the same number of animals have been even better, and the prospects are that over 80 per cent. of the animals in infected herds may be saved by this method. Considerable quantities of serum will be used before winter, and we shall soon know definitely what results can be depended upon.

In antitoxic serum we have a most valuable agent for the control of swine-diseases, but it can best be used under professional supervision. The State should regard it as an invaluable addition to its

resources for eradicating the disease from our territory. If its application is left to the individual farmer, some will use it, but many more will neglect it; and swine-diseases will continue their ravages with slight abatement. If the State adopts it, and provides for its systematic use wherever the infection appears, and requires the disinfection of stockyards and stockcars, it will not be long before swine can be raised with safety and profit, and the fifty or one hundred millions of dollars which are now annually blotted out by this scourge will go into the pockets of our farmers, increasing the wealth and prosperity of the nation.

THE ARMY VETERINARIAN.

You will learn from the report of the Chairman of the Committee on Army Legislation that nothing has been accomplished toward the organization of a proper corps of commissioned veterinarians for service in the army. The chairman of the Committee on Military Affairs has been favorable to the necessary legislation, but the War Department has persistently objected, and has prevented the accomplishment of this reform which has been urged for so many years by this Association. Is it not incredible that in this practical and up-to-date country the War Department should insist upon being behind all other civilized nations in its organization and equipment of this branch of the service? Why do those who control that department object to skilled, interested, and responsible officers whose duty it would be to examine and pass upon the millions of dollars' worth of horses that are purchased and upon the other millions of dollars' worth that are condemned as unfit for service? Why do they object to responsible experts who would have the authority to secure proper medicines and instruments for the treatment of sick and disabled animals and to direct humane and intelligent treatment?

I shall not attempt to answer these questions in this address, but as the press and people of the country are asking for information as to why the same department is antiquated and inefficient in some other respects, it is possible that Congress may yet undertake a reorganization on modern lines. When that time comes, let us hope among other practical features there will be given to the army a commissioned veterinary service that will not only insure honesty, economy, and intelligence in the purchase and treatment of animals, but that will give the veterinarian and his family the same prospects of a pension in the case of injury or death that are enjoyed by other classes regularly connected with the military organization.

CHANGE OF NAME.

You will have an opportunity at this meeting to vote upon a proposition to change the name of this Association from the United States Veterinary Medical Association to the American Veterinary Medical Association. This proposition is in line with the growth and development of this body. There are without doubt some disadvantages connected with an enlargement of the field which we represent, but these will probably be more than counterbalanced by the wider range of our vision and the nearer approach to a cosmopolitan character. The practicability of the plan is indicated by the success of the American Public Health Association, which embraces the United States, Canada, and Mexico; but there are some reasons why we should not act without careful deliberation. I trust the matter will be thoroughly considered before action is taken.

THE PRESIDENTIAL TERM.

There is, also, a proposition to be voted upon to increase the presidential term from one year, as at present, to two years. I regard this proposition as ill-advised and undesirable. We have had numerous members of this Association who should have been honored with the presidency, but for whom the opportunity has never come.

If we double the length of the term we lessen by 50 per cent. the chances of every member to gain this distinction, which should be coveted by all. Again, there are worthy members who would like to be President for one year, but who do not feel that they can give the time required by a term of two years. Why should we change the policy of the Association and insist that no member can be elected unless he serves for two years? Finally, if a President is so efficient in the discharge of his duties that the Association desires to avail of his services for two years, and he is willing to serve for that length of time, it is a very simple matter to re-elect him. These considerations lead me to express the hope that this proposed amendment to the constitution will not carry.

THE WORK OF THIS ASSOCIATION.

Gentlemen, this Association still has a great work before it. Much of the field of animal diseases in this country has never been explored. Concerning the diseases that have been long known and studied, there is still much to learn. We are in the midst of a great public which is ignorant of the principles of medicine in gen-

eral, and particularly ignorant as to animal diseases and their influence upon the health and wealth of the nation.

The work of this Association must be principally of an educational character. It should begin with its own members, encourage them to study, to think, and to write. It should particularly encourage original observation and investigation. It should use its influence to keep the veterinary literature of the country—the journals, the text-books, and the official reports—abreast with the times and equal, if not superior, to any that are issued in any other country. It should also be active in educating public sentiment.

The citizens of this country, as a body, can be trusted to do the right thing if they thoroughly understand any question. If they have interfered with our work, and in some instances apparently turned the hands backward on the dial of progress, it is because the educational work had been neglected, or, through a lack of discretion, prejudice, and personal feeling have been aroused. Convince the people of the various municipalities that we are laboring to save their property and to protect their health, and it will be strange, indeed, if we meet with opposition.

The great system of meat-inspection, now happily inaugurated, should be carried to perfection, so that the consumer can buy a piece of meat in any market in the country knowing that it has been inspected and that it did not originate from an animal diseased, injured, or otherwise unfit to furnish wholesome food.

A system of milk-inspection should be developed which will guard against filth, the germs of tuberculosis, typhoid fever, and other communicable diseases, and which will make it possible to drink a glass of milk in our cities without serious misgivings as to its effect upon our health.

The animal plagues which now ravage the land, tuberculosis, hog-cholera, and swine-plague, Texas fever, glanders, sheep-scab, and rabies should be rigidly controlled and eradicated.

More attention should be given to the treatment of the ordinary sporadic diseases, so that the veterinarian shall be prepared at all times to give the animal of his client the best treatment which the present condition of science will permit.

To accomplish all of this programme will require years of work, but it is your legitimate work. Individuals will come and go, but as an Association, the illimitable future is yours. There is no task so great, no achievement so distant, that its prospects need discourage you. Let us labor, then, systematically, with full confidence that in time all proper hopes shall be realized.

VETERINARY NOTES FROM EUROPE.¹

BY LEONARD PEARSON, B.S., V.M.D.,
DEAN, UNIVERSITY OF PENNSYLVANIA, VETERINARY DEPARTMENT.

DURING the past summer I have had an opportunity of attending the Congress for the Study of Tuberculosis that met in Paris, from July 27th to August 2d, and of making a hurried trip to a few of the capitals of Europe for the purpose of investigating the measures employed for combating tuberculosis of cattle. Incidentally, I have been able to pick up a number of points of general veterinary interest. In accordance with your invitation, extended through the President and Secretary, I take pleasure in informally presenting to you a few veterinary notes from Europe.

The Tuberculosis Congress was made up of about 250 delegates and members from the various countries of Europe and two from the United States. The meeting was held in the École de Médecine. The present Congress was the fourth of the series. The President for this year was Professor Nocard, of the National Veterinary School at Alfort. This no doubt encouraged a large veterinary attendance; many of the members, delegates, and officers were of the veterinary profession. During the progress of the meeting more than one hundred papers were read. It is not possible to review these papers, or even those that are of greatest importance, without occupying more time than can be devoted to this discussion. I will therefore call attention to a few points that impressed me as being of especial importance.

The first paper, by Professor Bang, was on "Prophylactic Measures Against Tuberculosis of Animals." In this paper the prophylaxis of tuberculosis in various parts of the world was discussed and the importance of some efficient measures of prophylaxis was emphasized. Then the methods employed in Belgium and Massachusetts were considered in great detail as examples of a system of suppressing this disease. In both States the attempt was made to buy up and destroy all tuberculous animals, making more or less systematic examinations of the cattle, and in both States, after an expenditure of considerable amounts and a trial extending over several years, the methods were given up as not feasible. Then the methods employed for the same purpose in Denmark were described in detail.

¹ An address delivered at the semi-annual meeting of the Pennsylvania State Veterinary Medical Association, Pittsburg, September 20, 1898.

Much has been said of the Danish method for suppressing tuberculosis of cattle, and there has been much interest in it in this country. Indeed, it has been warmly advocated in the United States as the true solution of the whole question of suppressing tuberculosis of cattle. In order that we may understand the Danish, or the Bang, system of dealing with tuberculosis, it is necessary for us to understand the agricultural conditions that prevail in Denmark. So that, if you will permit me, I will diverge for a moment and say a few words in reference to these conditions..

Denmark is a comparatively small country, having an area of but 15,000 square miles, or about one-third the area of Pennsylvania. It has, however, fully as many cattle and, perhaps, a few more than this State. Its cattle population is slightly above 2,000,000; it also has about the same number of people. Its one large city, Copenhagen, has a population of 600,000. The country is divided into two parts, the peninsula, or Jutland, and the island, or Seeland. The shores of both of these parts receive the balmy influence of the Gulf Stream, which tends to greatly moderate the severity of the climate that this northern country would otherwise have. It is interesting to note that Denmark is situated as far north as the Hudson Bay. The country is a gently rolling plain, sparsely wooded in parts, but generally open. It is a very good grass country and well adapted for dairying. It is not an exaggeration to say that Denmark is the dairy farm of England. Indeed, a very large proportion of the money that comes into the country is received from England for dairy products. Danish butter has an exceedingly high reputation on the European market. It is of excellent quality, and is uniform; it finds a ready sale not only in England, but also in France, and to a smaller extent in Germany, and it is exported to Hong Kong and Canton.

As a dependency on the dairy industry, the rearing and feeding of swine is gone into quite extensively, skim-milk being used largely for this purpose. The butter of Denmark is not made on the individual farms, but is made in coöperative creameries; a number of farmers in a district combine, build a creamery, send their milk to this central station, and have it manufactured by a skilled buttermaker. It is this system that is largely responsible for the uniformity and quality of Danish butter. It is the custom in Denmark for the cream, after it is separated, to be heated to about 80° C.; it is then ripened preparatory to churning.

The skim-milk is heated to a higher point, or is even boiled, before it is returned to the farm. These temperatures are high enough to destroy the tubercle bacilli, and milk thus treated can be used without danger.

Now that we have thus briefly reviewed the system of agriculture that is generally practised, let us consider the Bang method of dealing with tuberculosis of cattle. His method is to test with tuberculin, and then divide the herd under examination into two parts, or into two herds, one containing the cattle with regard to which there is no question, that are believed to be healthy; the other containing the animals that have responded to the tuberculin-test and those that are looked upon as suspicious. These herds are, if possible, quartered in separate buildings. If this is not possible, the cow-stable is divided into two distinct parts by means of a tight board partition, and, as a rule, there is no internal communication between the stables. It is necessary to go out-doors to pass from one to another. The two lots of cows are cared for by separate attendants, or if the herd is small and it is absolutely necessary for the same attendants to care for both lots they are obliged to have and to wear separate shoes and outer clothing when in the stable of the reacting section. The cattle that show physical signs of tuberculosis are slaughtered. The calves from the cows in the reacting sections are saved. These calves are fed on the milk of healthy cows or on the heated milk of reacting cows. The raw milk of reacting cows is never used for calf-feeding. The calves are tested when two or three months old, and it is found that less than 0.5 per cent. respond to the test, the others being free from tuberculosis. This shows that tuberculosis is rarely inherited. The milk from the reacting section is sent to the creamery. It is there separated, and the cream and skim-milk are pasteurized separately. At intervals of from six months to a year the healthy cattle are retested with tuberculin, and if reactions are obtained the reacting animals are transferred to the other section. Thus, gradually the tuberculous cattle are eliminated from the herd. As they develop physical signs of tuberculosis they are slaughtered, or they are fattened and sent to the slaughter-house, where they are killed under veterinary inspection. The healthy section is replenished partly by calves from tuberculous cows. In this way tuberculosis is being gradually eliminated in the herds treated according to this system.

More than 2000 herds have been treated in this way in Denmark, and the results are exceedingly encouraging. It is to be

noted, however—and this is shown very clearly by Professor Bang's report—that the results are only good where great care is observed and where all of the precautions that are recommended are closely observed. That is, the Bang method could not be efficient if the separation of the reacting from the healthy cattle were not complete. It would not be efficient if the calves from the reacting cows were not fed as indicated and removed from their dams immediately after birth, nor would the Bang method be safe from the public health standpoint if the reacting cows, when killed by the butcher, were not killed under veterinary supervision and their carcasses carefully inspected. Further, the Bang method would not be safe, either as regards the farmer's cattle or the consumer of his products, if the cream and skim-milk from the tuberculous herd were not heated to a point that insures the destruction of the tubercle bacillus. Then, in addition, it is necessary that there should be two sets of attendants for these two lots of cattle. Or, if but one set, certain very necessary but arduous precautions as to shoes, clothing, washing the hands, etc., must always be observed. Without all of these details the Danish system cannot succeed. Therefore, before the Danish system is recommended for general use in this country, the conditions should be carefully considered, and it should be ascertained beyond peradventure that the requirements of the system can be met before it is recommended for general adoption. In other words, these questions must be answered: Can the American, or more particularly, the Pennsylvania farmer, dispose of milk that is known to come from tuberculous cattle? Is there a market for it? If not, the benefits of the system are very materially reduced. Then, if there is a market for such milk and the milk be heated to the necessary degree, thus making it safe for manufacture or consumption, can the necessary conditions as to separation and separate care be observed on the ordinary farm? Will the calves be removed immediately after they are born, and fed only on the milk from the non-reacting section or on the Pasteurized milk of cows from the reacting section? Will the reacting cows themselves, if any of them are fattened and sold for slaughter, be sold in such a way as to insure their slaughter under veterinary inspection; and then, how many farmers would care to deliberately and publicly maintain on their premises a number of cows that were known to be afflicted with tuberculosis? Last of all, we have another very pertinent question: Is it necessary in the United States, so far as the ordinary dairy cattle are concerned,

for us to follow this method? In Denmark the percentage of tuberculosis is very high; more than a quarter of the cattle appear from the records to be tuberculous. In Pennsylvania it cannot be that the percentage is above 3 per cent., and probably not more than 2 per cent., so is it not cheaper in the end to at once dispose of the tuberculous animals? I do not mean to answer this question at this time or to offer an opinion upon the general advisability for us of the Bang method of suppressing tuberculosis, but I do wish to call attention to the difference in our conditions and to suggest several lines of inquiry that must be followed before the points necessary to the settlement of this matter are brought out.

Following this paper by Professor Bang, which I have gone into at some length, and have departed from very considerably in order to fully explain its import to us, there were a number of other papers of veterinary interest. One of these, prepared by Professor Nocard, and on the relation of avian to human tuberculosis, is, I believe, of very high importance. Professor Nocard has recently made a comparative study of the bacilli of human and avian tuberculosis. This study is of great importance at this time on account of the suggestions that have been made lately as to the possibility of great differences between bovine and human tuberculosis, and it has been inferred by some that these differences may be so great as to remove bovine tuberculosis from the domain of public health and place it completely and solely within the field of agriculture. Professor Nocard's work tends to unite the different forms of the tubercle bacillus more closely, and is in sharp contrast to the views that I have referred to. Professor Nocard has succeeded in transforming the bacilli of tuberculosis of birds into germs which respond to all of the tests for human tuberculosis to which he has subjected them. In other words, he does not claim that the germs of tuberculous birds and animals are merely very much alike, but he has shown that the germ of bird-tubercle can actually be changed into that of the other. This he has accomplished by a very ingenious method, the method of culture *in vivo* of Roux and Metchnikoff. This method consists in placing a culture of human tuberculosis in glycerin bouillon into a collo-dion sac, which is then inserted into the peritoneal cavity of a chicken. It is allowed to remain in this location for from six to eight months, the chicken is then killed, the sac removed, and it is found that the germ is changed so that it produces a form of tuberculosis in rabbits that is characteristic of the avian germ, and morphologically and culturally it corresponds to the same organ-

ism. Indeed, Professor Nocard goes so far as to claim that tuberculosis of fowls may be transmitted to man, and concludes by saying that the bacilli of avian and human tuberculosis are not two distinct species, but merely two varieties of the same species.

Attention was also called at the meeting to the recent reports of tuberculosis in fish, in which it appears that fish were infected by human sputum thrown into a pond, so that recent European investigations tend to further unify the various classes and varieties of tuberculosis. A great deal was said at the Congress about the new treatments for tuberculosis, of various forms of tuberculin, serums, antitoxin, etc. A number of claims were made for these remedies, but none of them was substantiated by sufficiently extensive reports to encourage us very much.

Perhaps more papers were read on the subject of sanatoria for consumptives than on any other. The world-wide movement for sanatoria for consumptives is most impressive. It appears that efforts are being made in all civilized countries for the isolation of the tuberculous, for the disinfection of the apartments occupied by them, etc.

Sanatoria are already provided for wealthy people in most countries, but there is little provision as yet for the poor. There can be little doubt, judging from the great interest that is now being taken in this subject and its immense importance, that sanatoria will in time be provided where the poor can be treated for consumption and other forms of tuberculosis, as well as these classes are now treated in hospitals for other ailments.

In the resolutions that were adopted by the Congress the various governments were requested to adopt some means for the prevention of the fraudulent use of tuberculin for the purpose of disguising the existence of tuberculosis of animals that were intended for sale or export. The following were also adopted: *Whereas*, in consideration of the incessant progress of tuberculosis of cattle, which constitutes a grave public loss and menaces public health, and that contagion is the only true cause of its progress, *be it resolved*, that there is urgent necessity for legislative measures in the following particulars: (a) The separation of the diseased animals from those that are healthy. (b) The prohibition of the sale of diseased animals for any purpose other than for slaughter. (c) The inspection of dairies devoted to the production of milk designed for sale to the public, and the immediate destruction of all cows suffering with tuberculosis of the udder. (d) The sterilization, or at least the Pasteurization, of milk used for the produc-

tion of butter and cheese in quantities. (e) The generalization of the public service for the inspection of meats under a system analogous to the one that has been in operation in Belgium for a number of years.

The Congress made visits to several laboratories and hospitals, and was terminated by a banquet.

The interest that is being taken in the subject of tuberculosis is increasing everywhere. Information in reference to it is being disseminated, and a true understanding of the disease is beginning to prevail, so that it is altogether probable that progress in prophylaxis will be made rapidly and the death-rate from consumption will steadily fall.

While in Paris I had the pleasure of making several visits to the Veterinary College at Alfort, one of them in company with Dr. A. Liautard. Although it was vacation, the clinics were continuing and work was going on in some of the laboratories. I found that a great change had been made in the Alfort School during the past few years, and that a large building containing the laboratories, museum, dissecting-rooms, etc., had been erected. The old building, in which the dissecting-room was formerly located, is now used as a chemical laboratory. Dr. Liautard made arrangements for us to visit the stables of the Paris Omnibus Company. This company controls the omnibus and horse-car lines of Paris, and has 18,000 horses. Most of these horses are Percherons and Percheron grades, about one-third are stallions, one-third geldings, and one-third mares. In some stables the horses are all stallions, in others geldings, and in others mares. The stallions are usually worked in teams, three abreast, and do not give rise to any disturbance whatever. The superintendent told me that they bought all the stallions they could get, and that they would have all stallions if they could find them. It is claimed that stallions are not only better looking, but more spirited, stronger, and more durable than geldings or mares of the same breed. The stables are very well constructed, the horses are kept on two floors, and feed is stored in separate buildings. The floors are made of granite blocks covered in the stalls with eight inches of peat moss. This method of bedding has been practised for several years, and the company finds that it is very desirable to have the horses stand on the soft bed when not in service on the streets. They rest better, and their feet and legs wear longer with this arrangement. These 18,000 horses are fed American oats and American corn. Their daily ration consists of 2 pounds of

African beans, 8 pounds of shelled corn, 8 pounds of oats. In addition they receive 10 pounds of cut hay or oat-straw. The horses are required to go from twelve to sixteen miles a day, and last at this service a little over five years.

A number of automobiles were seen on the boulevards and parks of Paris, but, so far as I could ascertain, these were not used for any public service. They belong to individuals, and are kept for brief outings in the city and immediately surrounding country. They are subject to numerous mechanical objections, and were not used in anything like the numbers that I expected to see, judging from the accounts that have been printed in papers. Moreover, I was told that not as many are in use now as two years ago.

From Paris I went to Switzerland to ascertain the methods employed in that country in dealing with tuberculosis of cattle, and to visit the Veterinary School at Berne. There is not a great deal of tuberculosis among the cattle of Switzerland, and the plan adopted is a radical modification of the Danish system. Cattle are tested with tuberculin, and many of them are killed at once. The killing, however, is done in slaughter-houses where the carcasses are inspected by veterinarians, and if the flesh is fit for food it is placed upon the market, subject in some cases to certain restrictions. Otherwise, the carcass is condemned outright. If the animals are not ready for slaughter, and are in such a condition that they can be improved by feeding, they are kept alive, but are all marked officially by removing a triangular piece from one ear. This means that the animal has responded to the tuberculin-test, and prospective purchasers are thereby cautioned.

In Berne I had great pleasure in visiting the veterinary school. The little country of Switzerland supports two veterinary schools at public expense. Besides the one I visited there is another at Lucerne. The Berne school is quite old, but the buildings were destroyed by fire a few years ago, so that the equipment is entirely new. The buildings are both beautiful and substantial, well arranged, convenient, and commodious. They comprise a residence building for the principal professors, in which there are a few lecture-rooms, a building for pathology and anatomy, the hospital, postmortem building, and the farriery. I was received and entertained by Professors Hess, Guillebeau, and Noyer, who took great pains to show me the entire equipment and furnish me with the details of the administration. This institution (as, indeed, are all of the European veterinary colleges) is supported by the government, because there is a keen realization of the fact that

it is to the advantage of the livestock interests and of the country to have available a force of well-trained men to look after the health of livestock and, indirectly, of the public, and to suppress and keep in check the various infectious diseases of animals that without control would render stock-breeding impossible.

In Germany I found great differences of opinion as to the measures which should be adopted by the country in dealing with the very important question of tuberculosis. The importance of tuberculosis of cattle is fully realized in Germany, but no systematic attempt has been made to suppress it because the distribution of the disease is so universal and the magnitude of the question is such as to appall the authorities. In Saxony more than one-quarter of the cattle killed for food are found to contain the lesions of tuberculosis, and in other districts the distribution of the disease is even greater. At present the government is expending a good deal of money in experiments with the Danish and other systems, and there seems to be no doubt that some general measures will be undertaken very soon.

In addition to the immense expense which the management of this question will involve, and which is, perhaps, the occasion for part of the delay, there is another factor which has contributed to defer action. That is, tuberculosis of cattle is hedged around by so many precautions in Germany that the disease has not the pressing public-health importance that it has in this country. I do not mean by this that the German is less apt to contract tuberculosis by eating the flesh or drinking the milk of a tuberculous cow than is his American cousin, but, in the first place, dangerous meat does not reach the market on account of the thorough systems of meat-inspection that are practised. Milk is always boiled, and the use of raw milk is almost as rare in Germany as the use of raw meat with us. So that even if the cattle were tuberculous to a much higher degree than they are, so long as these systems are in operation the public health is not seriously endangered. But while the government is casting around for a satisfactory means of suppressing tuberculosis, the disease is making strides, and it is generally recognized that it has gained great headway during the past few years.

In Berlin I found that the veterinary school had enlarged considerably since the time of my residence there. There is a new operating-room; a surgical clinic; Professor Dieckerhoff's clinic has been enlarged; there is a new stable for the dairy that is maintained on the premises; there are several new residences on the

grounds, and an institute of hygiene is now being erected for the department of which Professor Ostertag is the head. I desired to visit the new veterinary school which is being erected in Hanover, which it is claimed will be the most perfectly equipped of any in the world, but my time did not permit this visit.

From Germany I went to Denmark, and visited the veterinary and agricultural college in Copenhagen. Professor Bang had made arrangements for my visit, and great pains were taken to show me everything that I desired to see. I am also under obligations to Mr. Haral Morkeberg, veterinarian, for his great kindness in showing me the various points of interest, such as laboratories, the milk-supply company of Copenhagen, dairy farms, etc.

The veterinary college in Copenhagen is exceedingly well equipped. The agricultural college is in connection with it. The course of instruction covers four years, and is very thorough. I shall not allude further to my visit to Denmark, as I have already commented on Danish conditions of agriculture, etc., in connection with the reference to the article read by Professor Bang in Paris.

My trip was a very hurried one, but I managed to learn something of the conditions in four countries—France, Germany, Switzerland, and Denmark—and the impression that I received was that the most active interest in being taken in tuberculosis and in the suppression of this disease in Europe, and, further, that interest in veterinary education is increasing and that the outlook for useful veterinary occupation is most promising.

STATE CONTROL OF HOG-CHOLERA.¹

BY M. H. REYNOLDS, D.V.M.,
ST. ANTHONY PARK, MINN.

IT has been a belief rather generally accepted among State authorities working with infectious diseases of animals that hog-cholera was just hog-cholera, a sort of hopeless job anyhow, and that there was no use of attempting anything in the way of State control. I wish to insist that such lethargy is not justifiable, and that State authorities that are not making an organized and aggressive fight against hog-cholera are not doing their full duty. It is a common excuse that "we have no such laws back of us as you have in Minnesota." The simple remedy of this difficulty is to

¹ Read before the Thirty-fifth Annual Meeting of the United States Veterinary Medical Association, September, 1898.

get such laws. I am fully aware that the hog-cholera problem is a large one. I am also aware from personal experience in a long struggle that it is a difficult one; but I still insist that under favorable conditions it is both possible and practical to quarantine hog-cholera.

My discussion of this problem must necessarily be largely of Minnesota methods, for, so far as I know, Minnesota is the first State that has made any definite, organized attempt to control extensive outbreaks of this disease.

We have a State Board of Health, consisting of eight physicians and one veterinarian, as a central body, and 1841 local health officers and local boards of health. (Boards of township supervisors are *ex-officio* local boards of health in the country.) Our State Board of Health, so called, together with every local health officer in the State, constitutes the real State Board of Health. This makes an immense but fairly well-organized machine.

Our work in the State Board of Health is divided into three departments: secretary and general executive officer; bacteriological laboratory and director, and veterinary department and director. The fund appropriated for the work with infectious diseases of animals pays a portion of the bacteriological laboratory expenses, and the Board is entitled to whatever work in that line it may need. We have two first-class bacteriologists and a number of assistants at work in a finely equipped laboratory.

As a rule, reports of infectious diseases of animals come first to the local health-officer of some town, or the chairman of township supervisors in the country, and our law provides that this local health officer shall report the same to the State Board of Health within twenty-four hours. Local authorities are expected to take immediate charge of outbreaks of infectious diseases under the direction of the veterinary department of the State Board. Local authorities employ their own veterinarians and pay their own bills, but the State Board of Health has rules which have been issued for their guidance, and the work for each outbreak is supervised by the director of the veterinary department, either by correspondence or by the assistance of a field-veterinarian.

We are quite proud of our new Minnesota law dealing with infectious diseases of domestic animals, and in order that I may make plain our methods of dealing with the hog-cholera problem it will be necessary to give some extracts from this law:

SECTION 1. Authority is hereby given to the State Board of Health and to the several local boards of health of the towns, villages, and cities

of this State, to take all steps they may severally deem necessary to control, suppress, and eradicate any and all contagious and infectious diseases among any of the domestic animals in this State, and to that end, said boards are hereby severally empowered, within their respective jurisdictions, to quarantine any domestic animal which is infected with any such disease or which has been exposed to infection therefrom; to kill any animal so infected, and, whenever deemed necessary by the State Board of Health, to kill any animal which has been exposed to the infection of any such disease. Said State Board of Health is hereby expressly given authority to regulate or prohibit the shipment into this State of any domestic animal which, in the judgment of said board, may endanger the public health.

SEC. 2. Any person who knows of, or has reason to suspect, the existence of any contagious or infectious disease in any domestic animal, shall forthwith give notice thereof to the local board of health of the town, village, or city, where such animal is kept. Within twenty-four hours after any local board of health shall receive notice that any domestic animal is infected with any such disease, or has been exposed thereto, it shall give notice thereof in writing to the State Board of Health.

SEC. 4. No animal shall be killed by any of the boards herein mentioned until it shall first have been adjudged to be infected with a contagious or infectious disease, either by a duly authorized agent of the State Board of Health or by a physician or veterinary surgeon selected by a local board of health; except that, whenever, in the judgment of the State Board of Health, the control or eradication of a disease renders it advisable to do so, such board may order killed and buried, or otherwise destroyed, any domestic animal which has been exposed to a contagious or infectious disease, although at the time not infected therewith.

SEC. 7. It is hereby made the duty of the several local boards of health in this State to carry out and enforce all orders and directions of the State Board of Health to them directed, and the State Board of Health may require any two or more local boards to act together for the purpose of enforcing any of the provisions of this act.

SEC. 8. The State Board of Health, or any duly authorized agent thereof, may examine, or cause to be examined under oath, all persons believed to possess knowledge of material facts concerning the existence or dissemination, or danger of dissemination, of disease among domestic animals; and, for this purpose, shall have all the powers vested in justices of the peace to take depositions and to compel witnesses to attend and testify.

SEC. 9. Any person violating any provision of this act or any rule or regulation made by the State Board of Health, or by any local board of health, or any order made by any such board under the authority hereof, shall be guilty of a misdemeanor and be punished by a fine of not less than twenty-five or more than one hundred dollars, or by imprisonment for not less than thirty or more than ninety days. Any member of any local board of health who shall neglect or refuse to carry into effect the provisions of this act, or who shall neglect or refuse to carry out any directions of the State Board of Health, or who shall neglect or refuse to enforce any rule or regulation made by the State Board of Health, or by any local board of health, under the authority hereof, shall be guilty of a misdemeanor and be punished by a fine of not less than twenty-five and not more

than one hundred dollars; and each and every day's neglect or refusal to perform any duty imposed upon him by this act shall constitute a separate and independent misdemeanor.

SEC. 11. Whenever during the prevalence in the State of any contagious or infectious disease among domestic animals the owner shall post on his premises a notice forbidding all persons not authorized by State or local boards of health to enter any building or enclosure on said premises without permission from said owner, it shall be a misdemeanor to enter upon said premises, punishable by a fine of not less than twenty-five dollars, nor more than one hundred dollars, or by imprisonment for not less than thirty nor more than ninety days.

CHAPTER 47—H. F. NO. 358.

AN ACT RELATING TO THE SPREAD OF DISEASE AMONG SWINE.

Be it enacted by the Legislature of the State of Minnesota :

SECTION 1. It shall be the duty of the owner, or of any other person having in charge any swine that have died of any disease, immediately upon the fact of such death by disease coming to his knowledge, to bury the same at least three feet below the surface of the ground, or burn the same so that the carcass is consumed. No person shall sell, give away, or order for sale any swine that have died of any disease or have been killed on account of any disease. No person shall convey upon or along any public highway, or other public ground, or any private land, except his own, any diseased swine, or swine that have died of or have been slaughtered on account of any disease. It shall be unlawful for any person negligently or wilfully to allow his hogs or those under his control afflicted with any disease to escape his control or run at large.

SEC. 2. Any person convicted of a violation of this act shall be fined in any sum not less than ten nor more than one hundred dollars, or by imprisonment in the county jail not to exceed thirty days.

SEC. 3. This act shall take effect and be in force from and after its passage.

Approved March 12, 1897.

I would call your attention to the fact that definite and full authority is given to local and State boards. This law makes it the duty of any person who knows or has reason to suspect the existence of any infectious disease among any domestic animals to report the same immediately to the local board, and provides penalties for disobedience. The State board has authority to order the killing and disposal of the carcass of any domestic animal which has been exposed to an infectious disease, although not at that time diseased. The State Board of Health or any duly authorized agent may examine or cause to be examined under oath any person believed to possess knowledge of material facts concerning any infectious disease among domestic animals. This law gives owners authority to post a notice according to Section 11, which notice amounts to

private quarantine in self-defence against careless neighbors. The carcasses of swine that have died of any disease must be burned or buried as prescribed. It is unlawful to sell, offer for sale, or give away carcasses of swine that have died from any disease or have been killed on account of any disease. It is unlawful for any person to convey the carcasses of swine that have died of any disease, or been killed on account of any disease, along any public highway or any private land, except his own. It is unlawful for owners negligently or wilfully to permit hogs suffering from any disease to escape control and run at large. And, lastly, the fines that are imposed by this law are such that suit may be brought in a justice's court, and are so moderate that judges, justices, and juries will be willing to impose them.

HOG-CHOLERA CAMPAIGN OF 1897.

Please bear in mind that this work did not begin until the summer of 1897, and at that time we probably had forty-one counties more or less infected with hog-cholera and a large mass of farmers and local health-officers to deal with who were intelligent but who knew very little of hog-cholera, and, as a rule, were indifferent to proposed methods of control.

Obviously the proper treatment for this case was to stir up and give the most information to the largest number of people in the shortest time. Considerable time and energy and a portion of our annual appropriation for 1897 were, therefore, devoted to this end. Local papers of the infected district were furnished a great deal of hog-cholera literature, and the editors kindly published it. About 500 papers in this district have been patiently helping us scatter information concerning hog-cholera. I sent return postal cards to township chairmen in nearly forty counties, partly for the purpose of getting needed information and partly for the purpose of stirring them up and getting them interested in the work. The newspapers have printed copies of our new report blanks, hog-cholera quarantine card, notice card, hog-cholera circular, etc. We distributed copies of the law and hog-cholera circular giving information concerning the disease freely throughout the infected territory. This circular deals with symptoms, causes of disease, how the disease is scattered, what to do when an outbreak occurs, mistakes made by farmers, etc.

Hog-cholera was discussed at a large number of farmers' institutes and other farmers' meetings throughout the southern portion of the State.

It has been our aim to get this work in such a shape that we might deal with hog-cholera as the sanitarian in the field of human medicine deals with smallpox—*i. e.*, by intelligent prevention or individual and carefully prescribed quarantine if the disease has appeared. In order fairly to estimate the results of this first campaign we must divide the State into two districts: (1) Previously and badly infected district, and (2) territory infected for the first time during 1897. In the former district, which included fifteen counties, our results were far from ideal, although the maps and records indicate that we have been able, among other things, to render the spread of disease less rapid. This is also true of the territory immediately bordering on the generally infected district. In territory infected for the first time during 1897 our results were much more satisfactory. In many cases the disease did not spread beyond the township in which it first appeared. Our records indicate that there were forty townships infected at some time between January 1st and November 1st, and in which the disease had disappeared before the latter date. Total number of counties infected during 1896, probably forty-one. Total number in which the disease appeared during 1897, thirty-nine.

That it is possible and practical to maintain successful individual farm quarantine against hog-cholera was demonstrated over and over again during our imperfect work of 1897. The two following letters illustrate this point:

County of Hennepin, Township of Greenwood.

Sanitary rules and regulations for the town were adopted on the 13th of April, to go into effect the 1st of May.

On or about the first day of December the State Board of Health called our attention to the fact of a communication to its office that hog-cholera existed in our town, and for us to quarantine. Upon investigation, it was found that an extremely fatal and apparently contagious disease had broken out among the hogs on twelve farms since last September, mostly in the northwestern part of the town, resulting in the loss of 241 hogs, and since quarantine, 37, making in all 278 hogs. At a conservative estimate, we deem that our people have lost between nine and ten hundred dollars by this disease. Quarantine was established by this board on the 4th of December, 1897, against the further spread of suspected hog-cholera, to continue in force until disinfection was made. In connection therewith an order was issued prohibiting the slaughter of hogs for either domestic use or transportation from the township, unless first inspected by some member of the town board. The number of hogs inspected by the members was 136.

At present, as far as we know, this contagion has ceased within the original bounds of quarantine (*no spread beyond quarantine limits*).

The expense incurred to the town for the control of hog-cholera will approximate twenty-two dollars.

We are of the candid opinion that if our people would promptly report to the Board of Health the first appearance of any dangerous contagion, before it gains an extensive foothold, it would be easier to check the ravages of such sickness, and would surely add to the general comfort and welfare of our townspeople.

E. SIPE, C. B. S.

The following letter from Charles Kenning, Secretary of the Minnesota Swinebreeders' Association, illustrates again results that may be accomplished under reasonably favorable conditions by promptly quarantining outbreaks of hog-cholera :

OSCEOLA, March 1, 1898.

DEAR SIR: In reply to yours of the 18th inst., I would say that quarantine was established in Osceola Township, Renville County, on September 29th, at which time four farms were quarantined; but it was learned later that at least eight farms were infected at that time. This covered the eastern portion of the township, mostly settled by a class of people with whom it is difficult to deal in work of this kind. During the next two weeks the disease spread some in this neighborhood, as these farmers would visit back and forth and help one another without proper precaution. The remainder of the town insisted that these farmers in this infected district should keep at a safe distance, and they avoided the infected farms as much as possible. *There was not a case of hog-cholera outside the quarantined area*, and even in the infected district those that would not come in contact in any way with the infected farms also escaped. Although the local board did very well in this infected township, there were some things left undone. The loss would probably have been much less if the farmers, who insisted upon doing as they pleased, had been severely dealt with according to law. I am satisfied from our recent experience that much can be done by proper quarantine; but the people themselves must do their part, and if they refuse, all necessary force should be used to make them. In all, seventeen farms were quarantined in this township.

For the benefit of Iowa and Nebraska friends I would suggest that practically all of our trouble in this line came from these two States, and was usually distributed from some railroad stockyards in Minnesota.

In estimating our results for 1897 it should be considered that the methods then in use did not have a fair trial. The disease had extended over forty or forty-one counties when this work began. We had a lot of local health-officers to deal with who knew very little about hog-cholera and very little concerning their duties in connection with it.

PRESENT METHODS—1898.

We have continued the general plan of individual farm-quarantine, and are trying to make it clear to farmers and stockmen that we quarantine only the hogs, hog-pens, yards, etc.—not the entire

farm, as many of our people seemed to think last year. We are trying to get in as close touch as possible with the stockmen and railroad men of the State for very obvious reasons—we need their support and help.

Whenever any suspicious disease appears on any farm the township supervisors are expected to place all hogs, hog-pens, yards, etc., where hogs have been confined recently, under rigid quarantine. This quarantine must include all hogs that have been exposed directly or indirectly with those that are sick. Conditions of quarantine, specified on the hog-cholera card, read as follows:

All persons excepting the owner, duly authorized attendants, or medical advisers are forbidden to enter any inclosures where hogs are kept on these premises, until this card has been removed by permission from the State or local Board of Health.

Hogs must not be removed from these premises after date of this card, until six months after the last case has died or recovered, except in the following cases: 1st, by permission in writing given by the State Board of Health; and, 2d, dressed carcasses of healthy hogs killed under inspection of the State or local Board of Health.

No hogs, excepting those hereby quarantined and their offspring, shall be allowed upon these premises until six months after the last hog has died or recovered. During this period of six months no other domestic animal shall be permitted in these premises for any reason whatever.

Parties living on this place must not go near pens or yards where hogs are kept on other farms.

Keepers of these hogs will be held responsible for the unauthorized removal of this card and for allowing any swine hereby quarantined to escape from these pens or yards and run at large.

Township supervisors are also expected to warn neighboring farmers of the presence of the disease, and give them such other information as they may need. When the supervisors are in doubt as to the nature of the disease, it is their duty to call a competent veterinarian to make necessary examinations and to ascertain whether the disease is hog-cholera. The hog-cholera card is posted in conspicuous places about the pens and yards.

The general plan of an educational campaign has been continued, but in a somewhat different way. Printed matter is still distributed freely, and we are doing a lot of personal work with local health-officers. We now have two field-veterinarians, one of whom devotes his entire time to work with hog-cholera, and the other gives a portion of his time to it.

Dr. Annand's field work is probably somewhat unique. Early in the season he began a campaign of personal work among township supervisors, the plan being to visit the chairmen of boards of township supervisors, and talk hog-cholera with them; for instance,

he takes dinner with one chairman, stays over night with the next one, and gives as much information as possible concerning the nature of the disease, how it usually spreads, duties of local health-officers, and gives specific instructions as to just what should be done in case hog-cholera appears in that township. He is doing this work in what we call the border counties—*i. e.*, just north of our generally infected district. Beginning in the eastern part of Wright County, he visited every township in a strip of country two townships wide across the southern portion of that county; all the townships in Meeker County, excepting the four northern ones, and a strip of territory four townships wide across the southern portion of Kandiyohi County. In a similar way the eastern, southern, and western portions of Stearns County were visited. The townships to be visited are selected according to location of infection last year; and in a similar way he will work through Chippewa, Swift, and Lac-qui-parle Counties. Dr. Annand is able to visit about two townships per day. He travels mainly by bicycle, and his expenses are reduced to a minimum, averaging thus far about eleven dollars per week, much less than we estimated before the work began. I believe this work is one of the best things so far attempted. I do not suppose that all the chairmen of town boards in this territory will do ideal work if the disease comes their way, but I do believe that they will know enough about it to take prompt action and at least report the first outbreak, so that they can be given specific instructions for further work. During our first season's work many of our local health-officers seemed to think an outbreak covering less than half a dozen farms was not worth while reporting.

Our placards, blanks, circulars, etc., are similar to those in use last year, but all have been modified more or less as experience has proved necessary. The "Notice" card has proven a good thing, and is continued. Farmers will probably use them much more freely this season than last, for they are beginning to realize the possibilities that lie in the way of private quarantine when supported by law.

Our stock-letters, as we call them, are printed with copying ink and in a color and style similar to the typewriter. These letters copy nicely in letter books. Each case usually calls for special comment or instruction, and space is left at the top for the address and this instruction in addition to the stock-letter, which fits all of these cases. We save an immense amount of office-work in this way. We have a letter of this kind for glanders, another for hog-cholera, and will soon have one for tuberculosis.

Our hog-cholera stock-letter has been modified and reads as follows:

It is the duty of local health-officers, including township supervisors, to quarantine all yards and pens in which there has recently been any suspicious swine-disease. Conditions of quarantine are given on the "Hog-cholera" and "Suspicious Swine-disease" card, sent you under separate cover.

I send you to-day a complete hog-cholera file, containing several copies of the "Blank for Reporting Infectious Diseases Among Domestic Animals." Please fill out one of these for each farm whereon the disease has appeared, and return to me as soon as possible. It is your duty to put up in a conspicuous place one or more of the "Hog-cholera" and "Suspicious Swine-disease" cards, bearing in mind that you are quarantining only the yards, sheds, pens, etc., where hogs have been confined. Please distribute copies of the law and hog-cholera circulars freely in this neighborhood. I think it would be wise for you to read the hog-cholera circulars and law carefully, that you may give the neighbors such advice as they need. Call their attention especially to the last section of the law and see that it is enforced.

The "Notice" cards should be distributed among neighbors whose hogs have not been sick, and who may wish to avail themselves of the protection which the law gives them: that is, the right to issue private quarantine in self-defence.

Neighbors should be warned of the presence of the disease and informed that it is very unwise for them to go where sick hogs have been kept on other farms; and equally dangerous to permit visiting neighbors to go into hog-pens or yards.

I hope your people will realize that hog-cholera is infectious, like small-pox or diphtheria, and must be conveyed from farm to farm, otherwise it does not spread.

The fact that there has been no sickness during the past few weeks among hogs on a farm where there has recently been an infectious swine-disease gives no assurance of safety. The farm may still be infectious, and should be so regarded. It may be necessary for you to watch this thing closely for several months. It is folly to waste valuable time in discussing the name of the disease that is now prevailing in your township. The name is the least important feature; but if it is infectious—*i. e.*, catching—it is hog-cholera, and must be treated as such.

As nearly as possible we send a field-veterinarian to each outbreak, with instructions to stay as long as necessary and to visit chairmen of all adjoining townships for the purpose of getting them ready for possible trouble.

The following regulations were adopted last summer and are now in force:

HOG-CHOLERA REGULATIONS.

All railroad shipping-pens in the following counties are hereby declared to be probable or possible sources of infection for hog-cholera: Fillmore, Moore, Freeborn, Faribault, Martin, Jackson, Nobles, Rock, Pipestone, Mur-

ray, Cottonwood, Watonwan, Blue Earth, Waseca, Steele, Dodge, Olmsted, Winona, Dakota, Scott, Sibley, Renville, Yellow Medicine, Lac-qui-parle, Chippewa, Kandiyohi, McLeod, Carver, Anoka, Stearns, Pope, and Swift.

1. Hogs must not be removed from any railroad shipping-pen located within the aforesaid counties, except for shipment by rail to some point for slaughter.

2. Hogs shipped from point to point in Minnesota, or from another State into Minnesota, and not intended for immediate slaughter or exhibition at the State fair, must be crated, shipped in other than stock-cars, and accompanied by a certificate stating that they were free from disease when shipped, and that there had been no hog-cholera in the neighborhood from which they were shipped for a period of at least six months previous to shipment. This certificate must be signed by a licensed physician, veterinarian or health-officer, and must be delivered to the local health-officer of the district into which the hogs are shipped.

3. Hogs for shipment in crates must not be permitted in or loaded from railroad shipping-pens.

4. Hogs intended for exhibition at the State fair must be shipped in cars that have never carried hogs or in stock-cars that have been disinfected by the railroad according to agreement with the State Board of Health. They must be shipped in crates, and must not be loaded from or through any railroad shipping-pens. Upon arrival at the fair-grounds and before unloading, the person in charge shall be required to sign a certificate stating that the hogs were free from disease when shipped and that there had been no hog-cholera in the neighborhood for a period of at least six months previous to shipment. Managers of county and district fairs held in any of the counties named above are requested not to have swine exhibits in connection with such fairs during 1898.

SWINE EXHIBITS AT STATE AND COUNTY FAIRS.

These have furnished us a difficult problem. Some of the conditions imposed last year were plainly impracticable, and our plans for 1898 are considerably different. This fall we made such arrangements with general freight-agents that swine for exhibition at the State fair came in other than stock-cars, or in stock-cars that had never carried hogs, or in stock-cars that had been especially disinfected and provided for this purpose. Ten days before the fair opened general freight-agents were furnished with a complete list of all intending swine-exhibitors, and they then provided sufficient horse-cars or new stock-cars, or stock-cars that had been disinfected by steam in the shops for this special work. Each freight-train passing through places from which swine shipments were to be made carried two such cars on Thursday, Friday, and Saturday before the fair. Upon arrival at the fair-grounds each exhibitor was required to sign a certificate to the effect that his hogs were free from disease when shipped, and came from a neighborhood in which there had been no suspicious swine-disease during the past six

months. All hogs were inspected on their arrival by a representative of the State Board of Health, and thereafter daily during the fair.

Pens have been so altered that visitors cannot climb into them, and an extra partition, made tight, has been placed between pens, so there can be no possibility of manure or litter, or other possible infectious material, passing through one pen to the other.

I have been furnished with a list of exhibitors, and all swine exhibits will be followed to their homes by correspondence, that we may know whether our work succeeded. A small circular has been issued to exhibitors, and through the general offices to the local railroad agents, informing them of the conditions that have been imposed. This circular also informs exhibitors of the precautions that have been taken for their interests. Our rules provide further, that if daily inspection discovered any sick hogs, such hogs were to be isolated in pens especially provided. If the disease proved to be hog-cholera all sick hogs were to be promptly killed and the carcasses burned.

At the larger stockyards, for instance, South St. Paul and New Brighton, where government inspection is maintained, we coöperate with the Federal Government by giving government inspectors authority as representatives of the State Board of Health. This plan has proved satisfactory with several outbreaks of sheep-scab and hog-cholera which appeared in these yards. The following blank, when filled out by such representatives of the bureau and State Board of Health, gives needed information as to the place from which such diseased stock was shipped, township in which they were fed, etc. In this way it is possible to trace diseased animals back to the township from which they came:

Infectious Diseases of Animals.
F. VIII. 3-7-98 1M.

MINNESOTA STATE BOARD OF HEALTH.

REPORT OF DISEASED ANIMALS RECEIVED AT STOCKYARDS.

Disease . . .
Point of shipment . . .
Number and kind of animals . . .
Fed by . . .
Fed in township of . . .
Consignor . . .
Consignee . . .
Number of diseased animals . . .
Disposition of diseased animals . . .
Remarks . . .
Signed, . . . Inspector.

NOTE.—Please report promptly in duplicate to the Veterinary Department of the Minnesota State Board of Health.

I might suggest for the benefit of others who are trying to solve some of these problems in State medicine, that we work in close coöperation with the city health departments of the larger cities. This plan has proved very economical and satisfactory. One inspector in Minneapolis and another in St. Paul are given authority as agents of the State Board of Health, so that in case diseased animals are taken out of quarantine or removed into the country before quarantine can be established the city representatives can follow them without a lot of red-tape correspondence with the State Board.

The hog-cholera situation in Minnesota at this date (August 15, 1898) is much more encouraging than at this time last year. Comparatively few outbreaks have appeared at this date, although I take it for granted that we will have trouble during September and October, when stock-buyers and threshing-crews are abroad and farmers have commenced fall-feeding. I have no means of knowing just what relation exists between hog-cholera and conditions of food and care, but I have a lingering suspicion that when the hog-cholera chapter is finally written there will be some things other than bacilli in it.

I take pleasure in showing you two maps, one for 1897 and the other for 1898. These maps show by the sizes and colors of the painted spots the location and period during which outbreaks occurred. I am aware that hog-cholera is less prevalent in other States than it was in 1897, and yet I think it is probable that our plan of interesting and educating farmers, and especially local health-officers, along hog-cholera lines, in addition to quarantine, has contributed materially to our present condition. The number of counties does not represent the number of outbreaks, for one outbreak may involve corners of four different counties, or an outbreak in the eastern side of one county may extend into the western side of another. During July and the first part of August, 1897, the reports came in rapidly, and we were very busy.

Perhaps some one is already saying, "But do you really consider individual-farm quarantine for hog-cholera a practical thing in extensive outbreaks?" I do consider such individual-farm quarantine entirely practical in recent and limited outbreaks. It can be made successful in extensive outbreaks, providing we have chairmen of townships who are active and willing to do considerable work for comparatively small pay, and do their duty in spite of opposition, and provided further that these boards of supervisors have the support of their influential and intelligent farmers.

We have been able to find such conditions in Minnesota quite frequently, but there have been exceptions. I do not suppose for a moment that this work is ideal, and yet we have accomplished results that have been fairly satisfactory to ourselves and to the stock-interests of the State. When farmers are generally convinced that hog-cholera is an infectious disease, and are better informed concerning it, and when township supervisors are better informed concerning their duties, our work will be easier and more satisfactory.

It is quite reasonable to suppose that in the near future we will be provided with a vaccine that can be economically produced, concentrated, conveniently administered, and thoroughly practical. When this happy day arrives we will have means that can be used to great advantage in connection with such quarantine as has been outlined in this paper. If an outbreak appears on a certain farm, all hogs on neighboring farms for several miles can be promptly vaccinated. In this way we will not only have all the safeguards that may come from quarantine, but we will also be able to "back-fire," as it were, against the disease.

USEFUL POINTS OF VALUE IN A COUNTRY PRACTICE.

BY S. S. WHITBECK, D.V.M.,
DECORAH, IOWA.

I WISH to call your attention to a few points in veterinary practice that may at least interest country practitioners, and hope through criticism to get the ideas of some of the best men in the country on the points mentioned.

The ideas here presented are written from a country practitioner's standpoint. We take it for granted that all city veterinarians have large, well-equipped, up-to-date hospitals. All country practitioners should have, at least, a small one of six to eight stalls, part single, part box-stalls, well padded all around for violent cases; force-pump or city water to flood floors with; small tank above for application of cold or hot water through a tube. The constant application of cold water to swollen shoulders and fistulous cases will nearly always remove the swelling and make the after-treatment much more simple and effective.

¹ Read at the Thirty-fifth Annual Meeting of the United States Veterinary Medical Association, Omaha, Neb., September, 1898.

All recent bruises and strains are much benefited by a short course of cold applications. A fast horse was brought in one night that had just thrown out a good-sized curb by falling from an approach to the barn. He was so lame that he could hardly use the limb. Cold water was forced upon the enlargement through a small rubber tube over night, and the curb could hardly be seen in the morning, while the patient was resting the opposite leg. In intense fever and swelling after an operation, a cold stream forced upon the surrounding parts over night, and a teaspoonful of aconite tr., repeated in three to four hours, will generally arrest the dangerous symptoms in a few hours, and materially reduce the swelling. In fractures and severe contusions a hot stream is best, and is easily applied by means of a small oil-stove. Aconite may be used as above if there are symptoms of severe inflammatory action.

No one with any hospital practice should be without a stocks. They may be made in almost any design, well braced, and should always have a roller on each side to raise the patient from the floor when necessary. Any stocks can be used by one person, and will be found invaluable in detaining fistulous and poll-evil cases and for many of the minor operations. It saves time in looking up help, looks much better than casting every time you wish to touch a bad case, and is much safer to operator and patient alike than the twist alone. The writer has a stocks which cost seventeen dollars completed, and would prefer going without an operating-table rather than without the stocks. In it fractious cases can be safely dressed. Any part of the animal economy, from head to foot, can be made practically immovable, and a twist can be fastened to front standard by means of a staple and snap. While an operating-table furnishes a very nice method of detaining the patient for many operations, yet with the economical stocks on hand the table may be dispensed with. But one or the other is almost absolutely necessary in caring for most of our hospital cases.

I fear, however, that too many operators prefer the use of table and close confinement to the use of chloroform, and right here let me say that there is nothing in our practice that looks nicer or gives a better impression than properly chloroforming a patient for every operation that is at all severe. I believe that with a little more experimenting horses and cattle can be chloroformed almost instantaneously by the injection of chloroform into the jugular vein. I have tried this on five old horses, and several lumpy-jaw steers that were incurable, and have had no unfavorable results from it. The operation may be commenced at once, and if of any duration the

anæsthesia may be prolonged by the application of ether and chloroform, half and half, to the nose. To date I have used from two to four drachms to one injection, and kept one patient under treatment two hours by inhalation of the mixture. All of the cases were subjects for the grave. Of the horses, two were killed after being kept under for an hour; the other three were up afterward for two hours, and injected again and killed. One of the steers is alive yet; two were kept for a day, and the others killed at once. But little chloroform is needed, and much time is saved. No one should use any of the anæsthetics without having amyl nitrate or nitroglycerin and hypodermic syringe at hand, although in my practice I have never had to use any restorative agent.

Many of the operations that were formerly very dangerous and painful are now performed with much less pain and little or no danger. In the operation on cryptorchids, for instance, we used to think it necessary to insert the hand and arm; but now nine out of ten cases can be operated upon by simply inserting one or two forefingers, and, working them in catch-fashion forward and out, the cord may be caught up and brought out, then the testicle. This method of performing the operation is very simple, and the danger is very slight, scarcely any more than in common colts. The patient should be thrown or placed with the head down hill, so the intestines will not be in the way; and the under rope should be brought back and up over the hip to the upper foot, so that the limbs cannot be extended and put the muscles in the pelvic regions to the strain. The nicest instrument for any castrating is the small-sized emasculator; bleeding is less liable to follow; the work can be done more quickly, and the instrument is more easily kept clean than the *écraseur*. True, in some cases, where the testicle is fastened internally, an *écraseur* is necessary, and may be passed into the abdominal cavity.

In deep-seated fistula cases, where the pus has burrowed between the shoulder-blades, the patient may be laid down in a soft bed, in as easy a position as possible, and kept down any length of time. One case of a very fractious disposition I laid down this way, and kept him there five weeks. He made a good recovery, all the matter escaping as soon as it formed, and the patient after a few days became as tame as a kitten, eating and drinking generally in the sitting posture, then lying down again. He was turned over three times a day by means of a pulley and rope.

Since listening to Prof. Reynolds's paper in Chicago I have tried both trephining and setoning. In trephining a little sac soon forms

below and defeats us, but by passing a strong carbolized muslin-cloth from the bottom of the cavity down and out in front of the shoulder, a perfect dependent drainage is obtained, and most of the cases will do nicely.

In fracture of the limbs where splints or plaster-of-Paris bandages have to be applied, I very much prefer the keeping of the patient down, and find the owner generally prefers it to the slings. Of course, some of them will struggle for a time, but not as much as one would expect. A good many horses have more than horse-sense. With a good bed and oft turning there is but little danger of bedsores, and the patient will generally accommodate himself to the position very readily.

While there is plenty of room for advancement in veterinary surgery, there are likewise many things that we must learn yet in a medical line. One veterinarian, well up in his lines, writes: "We have no good treatment for bog-spavins, puffs, curbs, capped hocks, etc." I will admit that we know of nothing that works very quickly, but to the patient I suggest the following absorbent blister: Mercuric chloride, 1 oz.; gum camphor, 1 oz.; alcohol, 3 oz. Put mercury in solution in alcohol; then add turpentine to make a pint. Clip hair from the enlargement and wash clean. When dry rub in the above preparation with swab for three successive evenings. On the fourth morning wash clean and grease. Wash and grease every other day until the skin is healed, then repeat as before. Repeat thus five or six times, leaving the animal as quiet as possible in the meantime. In the soft enlargements bandages may be drawn tightly around the enlarged parts every evening after applying the blister, also during the interval between blisters, if desired. This does no harm in the treatment of curbs and capped hocks, rather hurrying the process of absorption. The bandages should be left on over night, while the patent arrangements for that purpose may be used several days at a time, the blistering with this making an ideal treatment, and nine times out of ten produces a satisfactory conclusion. After five or six series of blisters the patient should be turned in pasture or put at light work where there is no lameness remaining.

About two years ago I was called to see a sorrel mare, eight years of age, left hip shrunk very badly, bog-spavin extending all round the joint. The animal was so lame she could hardly step on her foot. I ordered the above blister alone, taking about two months to apply the six series of blisters, and then turned the patient out to pasture. In three months more the owner went out

to get his mare, and did not know her at first, for the animal was as sound as any and round as an apple. But little of the enlargement was left, and this disappeared later on. The animal has been used as a delivery horse since, and remains sound. Since then I have used this preparation on many curbs, capped hocks, puffs, and similar enlargements with excellent results.

The method of applying one blister after another as soon as the skin is healed until several have been applied, works very nicely on bone-spavins, ringbones, and splints. I have removed lameness frequently by this process, where firing has proved to be a failure. I paid over thirty dollars for a Paquelin cautery that I am now ready to make any young man a wedding present of. In fact, I believe that blistering, like any other form of treatment, must be kept up for some time if the best results are to be attained. The usual way of ordering one or two blisters is simply a starter.

In the treatment of black water the writer has found the lithium treatment to work very nicely in connection with bleeding. From three to six quarts may be withdrawn, according to the size of the patient, with decidedly beneficial results. Two to four drachms of the lithium may be given as a starter, and will generally be sufficient. Flax-gruel should be given every two hours at first, and thrice daily all through the attack. This serves as a soother to the kidneys, a laxative at first and a nutriment later. In all cases of azoturea I give ten to fifteen drops of 0.01 per cent. solution of nitroglycerin six to eight times intravenously, repeating the first two or three doses every hour, and every three hours through the attack. This lessens the tendency to spasmodic action of both voluntary and involuntary muscles, thus counteracting any tendency to sudden death; lessens the tendency to inflammation of the kidneys by promoting a flow of blood to the skin and extremities, regulates the heart's action, and, in my opinion, surpasses strychnine. As a nervo-muscular stimulant further on.

Nitroglycerin also makes an elegant stimulant in parturient apoplexy; given as above and in connection with other treatment, works equally as well in influenzas. In fact, any place where a quick nervo-vascular stimulant is needed, nitroglycerin is worthy of a trial.

In torpid conditions of the intestinal tract in horse or cow, in hoven, distention of the rumen with food, or indigestion of the third stomach, no better stimulant can be found than liquor ammonia acetatis in good-sized doses, having a powerful action on the entire glandular system. Most of my cases of impaction of the

rumen are cured without any operation by the use of one pound of Epsom salts to begin with, and three-ounce doses of liquor ammonia acetatis, repeated every two hours until the bowels begin to move freely. I remember a bad case of this that had been treated by a country gentleman for one week ; then I was called in, and finding that plenty of cathartic had been given, I ordered four-ounce doses of this liquor every two hours until the bowels began to move freely, then every four hours. The cow was so weak at the commencement of my treatment that she could scarcely stand ; but by the next morning, she was much better, and made a nice recovery. Have tried it in poor digestion and constipation in human practice, with very satisfactory results ; two to four teaspoonfuls an hour before meals, often getting quite a laxative effect from its action alone. Indeed, the writer of this paper was bothered with dyspepsia, constipation, and (judging from my feelings at the time) nearly all the diseases the digestive tract is heir to. After trying most of the doctors' and all the remedies resorted to in such cases, I happened one sad day to think of the old cow and her marvellous recovery, and decided to try the treatment that had saved her, feeling that our troubles were somewhat mutual ; and to its action, no doubt, I owe the privilege and pleasure of being present with you to-day.

A NEW TREATMENT OF PARTURIENT PARESIS OF COWS.

BY OLOF SCHWARZKOPF, V.M.,
FLUSHING, N. Y.

OF the diseases of domestic animals incidental to seasons, none is of a more serious nature and more disappointing to the veterinarian with rural practice than the so-called milk-fever of cows. Every year this disease makes its appearance at the calving season, and continues more or less unabated during the hot summer months. From the grave character of the disease ; from the fact that it befalls only valuable, well-bred and well-fed cows ; from the conflicting theories of the pathology of the disease, and the utter absence of an accurate and controllable therapeutics, it remains a disease dreaded by all veterinarians whose lot it is to deal with it in practice.

¹ Read at the annual meeting of the New York State Veterinary Medical Society, New York, September 15, 1898.

The theories on the pathology of milk-fever, historic and present, are interesting not only in themselves, but specially so as illustrating the periodic changes in medical ideas. They can, however, only briefly be referred to, as the object of this paper is to be concise and practically instructive. The oldest pathological theory which may have a claim to be scientific is that of Bentele, dating back to the early years of this century. He and his followers considered the disease a lacteal metastasis, and in old veterinary books we read of milky contents in the kidneys, of milky urine, of lactiform substances found in the lungs, etc. This theory has been forgotten by the present generation of veterinarians, but if signs are true it may be revived in a modified form. Besides the later theories of English writers which are known to you, there is that of Harms, of Hanover, who explained it as a result of suction of air into the bloodvessels during parturition, followed by cerebral anæmia and paresis. This hypothesis was born at a time when fatal results were obtained by the absorption of air during operations at the early days of modern surgery, and it was apparently substantiated by the presence of air-globules in cerebral vessels, a condition which later researches have shown to be the result of postmortem blood-decomposition. Then there is the theory of Frank, of Munich, who considered the disease a result of the sudden and grave circulatory changes produced by the abrupt loss of a large area of blood-circulation in the uterus, forcing large quantities of blood into new channels, especially the brain, thus producing cerebral congestion, followed by encephalic œdema and anæmia. This complex theory, based on an intimate anatomical study of foetal and uterine circulation, withstood the scientific criticism of years, and was until recently accepted all over the Continent of Europe. But of late it has been more or less superseded by the more modern theory of Schmidt-Mulheim, who advanced the theory that the disease was due to auto-intoxication by certain cadaveric alkaloids similar to the sausage-poison. He argued that these poisons develop within the uterus by the decomposition of the lochia, favored by the rapid occlusion of the neck of the uterus as observed in milk-fever. He based his theory on the result of the researches in experimental poisonings of Hoppe-Seiler, who discovered that a number of alkaloids, especially ptomatropin, ptomacurarin, and mytilotoxin, produce a paralysis of certain muscular groups, such as the pharynx, eye, etc., and in severe cases end in a paresis of the striated muscular fibres of the extremities and the unstriated fibres of the intestine

and bloodvessels. No one can deny that these symptoms have a striking resemblance to those so commonly exhibited by milk-fever. This brief review of the principal theories shows that they have ever been influenced by the predominant thoughts and discoveries in pathology, and they demonstrate the intense desire of our professional predecessors to unravel the mysteries of the nature of this disease.

If we turn to the therapy of milk-fever it is impossible to enumerate all the drugs that have been applied and found wanting. They number by the hundred; they range from the most crude and empirical applications of large quantities of drugs to the delicate use of the new biological products, and they have all been found worthless or of doubtful value. True, there are practitioners who believe they have found a "sure cure;" but sooner or later they will find, as we all have found, that at one time we may be quite lucky with a certain kind of treatment, while the second or third time we are decidedly unlucky. It is, as Professor Viborg once said: "Manchmal hilft alles, Manchmal hilft nichts" (Sometimes anything helps, sometimes nothing helps). I may summarize these points by saying that the medicinal treatment of this disease demonstrates most truthfully to the unbiased observer that it is not the drugs that act upon the diseased body, but that it is the living organism that reacts upon the drugs as long as it is capable of response. If from one cause or another the life of the animal is stunned, the so-called physiological action of drugs is left to be ampty phrase.

Nevertheless, there are certain methods of external and internal application which, if employed at the proper time and with proper precautions, tend to assist the struggling organism to overcome its morbid condition. They should never be dispensed with, whatever our future treatment may be. The first indication to follow is to put the animal in a comfortable position on a copious and clean bedding, which is not always an easy matter. Then we must attend to the abnormal external temperature of the body by the use of external stimulants, assisted by friction with brushes, and by covering the body in woollen blankets. Following this the udder should be thoroughly milked out, while we empty the rectum by manual extraction of the feces, injecting immediately afterward a pint of a mixture of glycerin and water of equal parts, which rarely fails to assist in periodic evacuation of ingesta. Quite often I have emptied the bladder with apparent relief.

But when we now attempt a treatment of the alarming symp-

toms of distress so commonly exhibited by the animal, the deep mental depressions, the paralysis of the muscles, and the complete cessation of peristaltic movement, we fail. As the pharynx is early paralyzed, deglutition is difficult if not impossible, and excludes the application of medicines *per os*. Thus we must rely upon hypodermic medication. To counteract the nervous depression veratrine, caffeine, strychnine, spirits of camphor, etc., have been recommended. I have applied them all, and found that veratrine is the only agent to which the organism regularly responds by a profuse perspiration, but from which no lasting benefit is visible. To stimulate the peristaltic movements, eserine has given me prompt results, but in severe cases it is absolutely inefficient. Of the more modern methods of treatment the use of the normal salt solution has given me promising results. Out of three cases so treated two recovered. The solution undoubtedly produces a general reviving effect, easily perceptible. But a relapse may follow which leaves the animal in a worse condition, and repeated infusions of such large quantities into the jugular vein of cows so diseased are impracticable because the muscles of the bent neck, if straightened, contract spasmodically, preventing the operation. Besides, the cow-stable cannot readily be fitted into a laboratory, and the preparation of the solution and the process of infusion require a cleanliness and an assistance that cannot be had in such surroundings. To overcome these difficulties I have tried the hypodermic injection of the artificial serum of Cheron, which was recommended as a substitute for the normal salt solution as being of more precise action and applicable in smaller quantities. Of two cases so treated one came to rapid recovery, the other ended in death, which appeared to be hastened by the injections.

This was my experience with the treatment of the disease when I read, last winter, a short notice in the *Berliner Thierärztliche Wochenschrift* announcing the discovery of a new treatment of milk-fever by Veterinarian Schmidt-Kolding. According to him, the cause of the disease must be located in the udder which, by the suddenly increased lactation after birth, loosens great masses of old glandular cells (colostrum) in a sort of cleaning process. These undergo a decomposition, and form toxins, which are absorbed into the blood-circulation, resulting in auto-intoxication. He therefore directed his therapy against the udder, and particularly against an abnormally high milk-secretion, both qualitative and quantitative. It being known that iodide of potassium has the effect of decreasing the milk-secretion, he experimented with a

solution of this drug by infusing it directly into the milk-glands. Out of fifty cases so treated, forty-six recovered.

Schmidt's treatment is in detail as follows: After attention to the first symptomatic treatment the udder is milked out, thoroughly cleaned with soap and water, and the udder and teats disinfected with a lysol solution. Iodide of potassium, 7-10 grammes, is then dissolved in one litre of freshly-boiled water, the solution filtered and cooled to 40°, and slowly infused into the four teats, equal parts. The infusion is accompanied by massage of the udder. The apparatus for infusion consists of a glass funnel, rubber-tube of 1½ metre length, and a milking-tube. He recommends to give 5 grammes of caffeine subcutaneously if the pulse is weak, and if deglutition is not impaired an aloe-powder is given *per os*.

This treatment is certainly a wide departure from our customary methods. It is interesting because it is new, simple, and direct, and if the hypothesis of the cause of the disease is correct it must be scientific. I confess that I was skeptical at first, but was resolved to try and criticise afterward. Thus I can report the following cases:

CASE I. *Failure*.—On May 23d, 5 P.M., I received a hurry-call to come to a cow near Whitestone, which was bloated. When I arrived I found the animal, a Jersey, lying in a pasture, the head bent to the left side. She was in great distress, groaning heavily, grinding the teeth, and was in tympanitic condition. From a hurried verbal examination of the owner, which brought out the fact that the animal had calved two days previously, I informed him that the cow had milk-fever in a severe form, and that the prognosis was unfavorable. I resolved to try Schmidt's treatment, and, after giving directions for first treatment, drove to the nearest drug-store to procure iodide of potassium and a new syringe, as I had not yet acquired an apparatus for infusion. When I returned I found the cow in worse condition, but proceeded to prepare the iodide solution in a nearby kitchen. I found the injection into the teats a tedious process, although I had no difficulty in inserting the syringe, but it had become dark and I had to proceed by the light of a lantern. When I had finished and given a hypodermic injection of eserine, I watched the animal for two hours, but could see no effect of the treatment. When I called early next morning I was informed that the cow had died at 4 A.M. I opened the udder and found that the solution had been entirely absorbed and that no inflammation had resulted from the manipulations.

CASE II. *Recovery*.—On June 2d, 10 A.M., I was called to College Point to a cow reported apparently suffering with milk-fever. I found the cow, a Jersey, in a pasture, unable to rise and trying to keep the head straight, which would occasionally fall to the left side with a jerk. The case presented a light form of the disease, but I made the prognosis doubtful. I was prepared for Schmidt's treatment; made the solution in a restaurant, and injected it through the apparatus, which worked like a charm. I applied injection of 10 grammes of caffeine, and, noticing that the animal was bellowing for her calf, which had been removed by the owner, I had it returned and bedded next to her, which quieted her greatly. At 7 P. M. I received a telephone message that the cow was up, but very weak. I called the next morning, and found her still weak and swaying from one side to another when moved. I applied a stimulating drink and left. On the third morning the message said the cow was still weak, but otherwise all right.

CASE III. *Recovery*.—On July 6th, early in the morning, I received a call to come to Douglaston to a cow that had calved and was sick. I found the animal, a fine Jersey, in a box-stall, with all the symptoms of a severe form of milk-fever. I informed the owner of the unfavorable prognosis and then applied Schmidt's treatment at 9 A.M., injecting 10 grammes of the iodide solution. Being requested to call again, I arrived there at 5 P.M., and found the cow little if anything changed, but not worse. I resolved to give a second injection of the iodide solution, reduced to 5 grammes, which was easily done. I called again the next morning and found the cow still lying down, but head erect and trying eagerly to consume a bran-mash. Third morning the cow was reported still lying, but otherwise doing well. Fourth morning cow reported up and apparently well.

CASE IV. *Recovery*.—On July 14th, 4 P.M., I was passing through Whitestone, when I was halted and requested to attend to a sick cow. I found same in pasture, suffering from a light attack of milk-fever. After applying first treatment I went home to get my infusion-apparatus, and one hour later I was applying Schmidt's treatment. I called the next morning and found the cow still lying, but being coaxed with her calf she got up with assistance. She remained weak for two days.

In conclusion, I wish to say that favorable as these results appear to be, I have learned to be cautious, and I shall warn you against too much enthusiasm. True, I have never had three cases

in succession that recovered as well as those above cited; but we all have seen good recoveries before. One point I want to make stand out clearly, namely, that Schmidt's treatment requires a painstaking thoroughness and cleanliness, and that the manipulations of infusion are a delicate process that should not be performed by crude hands. If you will observe these points scrupulously and skilfully, then the treatment will be a pleasure to yourselves and give great satisfaction to the intelligent class of your clients. I hope you will report your good results and not pass in silence over your failures, for it is rather by such that we learn than by unlimited success.

WILD AND CATTLE DISEASES.¹

BY H. D. FENNIMORE, D.V.S.,
KNOXVILLE, TENN.

FOR several years past large numbers of cattle have died in East Tennessee of a malady known as "wild" and "cattle-disease." It continued in its deadly course until quite a serious outbreak of it occurred in the State Experiment Station herd, when Dr. Charles W. Dabney, the President of the University, ordered it investigated. It was recognized through the assistance of Dr. Norgaard as the disease described by Bollinger in 1878 under the denomination of "Wild und Rinderseuche."

It is a specific infectious disease that attacks very many species of animals, such as the deer, elk, wild and domestic hog, and cattle. It has also been seen in the horse and dog. In certain sections of Europe, notably the German Empire, it has killed large numbers of wild animals confined in parks, as well as domestic cattle. In this country it has been observed in Virginia, Texas, and now in Tennessee.

The symptoms are loss of appetite, constipation, diminished flow of milk, increase of temperature in the early stages of the disease; after the animal gets very anæmic the temperature drops to about normal. The mucous membranes become very pale, the constipation is followed by diarrhœa, and the feces are frequently stained with blood. The intestines are more or less distended with gas. There is a dropical swelling hanging from between the lower jaws that preserves the imprint of the finger. This symptom, with the loose, bloody

¹ Read before the Thirty-fifth Annual Meeting of the United States Veterinary Medical Association, September, 1898.

condition of the bowels, is very characteristic, and aids very much in an easy recognition of the disease. In some cases the soft parts of the head, face, neck, shoulders, brisket, and lower part of the legs are the seat of large œdematous swellings. The hair is bristly, and the epidermic desquamation produces an abundant furfur, and in a few cases ulcerations of the skin were noticed.

In the acute form these symptoms may increase rapidly and produce death in a few days or a week, while in a chronic form they may last for months or even a year. From what we can ascertain the disease takes a milder and more chronic form than in the old country, yet at any time it may assume a more virulent character.

Dr. Salmon speaks of it as an infectious ulcerative enteritis complicated with œdematous swellings under the jaws, neck, and brisket, and frequently accompanied by inflammatory lesions of the pectoral organs. He also says it is caused by a specific micro-organism that belongs to the swine-plague group, and resembles that bacillus very much.

On post-mortem examination the digestive mucous membrane of the fourth stomach and intestines is inflamed, swollen, and dotted with ulcers. The mucous membrane from the seat of the ulcers in some cases remains attached on one side and hangs as a flap. The ulcers are particularly noticeable at the outlet of the fourth stomach, along the course of the small intestines and at the ilio-cæcal valve. These ulcers are seen in various stages of development, from as large as two inches in length, and smaller ones that are in the process of repair, to cicatricial remains of where they have healed perfectly. Throughout the intestinal tract are found hemorrhages of greater or less extent, with blood-clots and a bloody liquid condition of the contents. Diarrhœa being present in most cases, the lungs are at times filled with gelatinous infiltration. The pleura is inflamed, swollen, and the visceral layer adhering to that of the chest-wall. The outside of the heart shows inflammatory new-growth, the pericardium is inflamed, and it, as well as the chest-cavity, contains a variable amount of dropsical liquid. Croupous lesions are found in the respiratory and intestinal tracts. The lymphatic glands are enlarged and œdematous. The subcutaneous connective tissue over the swollen parts is very much thickened and infiltrated. The abdominal cavity contains more or less liquid, and hemorrhages of the muscles and intestines are very common. All these symptoms and post-mortem lesions were noticed in one animal, but the majority of cases seen were of the intestinal type.

It is not well known how the bacillus enters the system of the

affected animals, but it is probable that it may enter through wounds of the skin. It may also be taken in with inspired air and gain entrance through the respiratory mucous membrane. The most probable source of infection of the subjects that came under our notice is through the medium of the food or drinking-water, thus accounting for so many cases affected with lesions of the alimentary canal.

In the absence of inspection laws the meat and milk of the affected animals have been consumed, but there has been no case reported where the disease was communicated to man.

TO DETECT HORSEFLESH FROM BEEF. M. Humbert, through the *Reveil de Medicine Veterinaire*, tells us that chemical tests will determine whether a given specimen of meat is from the horse or from the flesh of any other animal usually used for food. Fifty grammes of meat are boiled for one hour in 200 grammes of water, and then the decoction is set aside to cool. When cool, nitric acid in the proportion of 5 per cent. is added, and into this is dropped, drop by drop, some of Gram's iodo-ioduret solution, or in its place a solution of iodized water which has been well iodized by the aid of heat; if horseflesh is present, there will appear a deep violet-red circle. Neither beef, veal, mutton, nor pork will furnish the same reaction.—*Popular Science News*.

GREAT TREES. In Gypsyland, Australia, the eucalyptus tree, species *E. globulus*, often attains a height of 450 feet, and is considered by botanists to be the tallest tree on the globe. Pure oil of eucalyptus is principally obtained from the leaves of this species.

POISONING BY CATERPILLARS. Girard, a veterinary surgeon at Barre, Vt., has observed numerous fatal cases of poisoning in ducks after eating caterpillars, notably those of *pietis brassicæ*, the large, white cabbage butterfly. About six hours after eating these larvæ poisoning became evident, diarrhœa, and staggering gait, followed by dyspnœa and ultimately by death.

Autopsy showed the essential lesions to indicate inflammation of the digestive tube. It is probable that these symptoms are caused by the inflammation produced in the alimentary canal by the minute hairs with which this caterpillar is covered. It has been noticed that chickens invariably refused the larvæ of *P. brassicæ*, although they greedily eat the smooth larvæ of the various noctura.—*Popular Science News*.

THERAPEUTIC NOTES.

REDUCTION IN PRICE OF ANTIPYRIN. On account of the expiration of the patents covering the process of manufacturing this drug, the price has lately been reduced from \$1.40 per ounce to as low as 30 cents per ounce. Our patent laws should be amended so as to prevent in the future this species of extortion on the part of foreign chemists on the people of this country.

SCABINOL FOR DOG-MANGE. The following composition, named scabinol, Issleit (*Vet. Record*) recommends as a cure for mange in dogs: Soft-soap, 4 parts; betanaphthol, 1 part; storax, 2 parts; tobacco extract, 3 parts. Apply for three days, covering not more than one-third of the body at one time. Then wash the whole body with a solution of one teaspoonful of the scabinol in one quart of water.

TOXIN OF TUBERCULOSIS BACILLUS. Sciola (*Rev. Gen. l'Anti-sep.*) claims to have isolated a special toxic substance from the bacillus of tuberculosis by the action of ether upon glycerin extract. This substance injected in doses of 0.5 c.c. in the veins of a rabbit produces violent convulsions, and was fatal in doses of 2 c.c. In guinea-pigs convulsions of a milder degree were produced. The lethal action of this material is destroyed by a temperature of 100° C.; but a portion of the material which produces the convulsions remains unaffected.—*Western Druggist*.

DIODIDE ACETYLENE. This new compound occurs in colorless needle-like crystals, having a very disagreeable odor; it is volatile, and is soluble in all the ordinary solvents. On exposure to light it assumes a reddish color, and it is lethal to all forms of micro-organisms, and thus it prevents putrefaction and fermentation.

QUININE FOR HYPODERMATIC USE. The best preparation of quinine for hypodermatic use is the hydrochlorate, containing as it does nearly 82 per cent. of alkaloidal quinine. This drug is soluble in 21 parts of water, and by the addition of 2 parts of antipyrine it becomes soluble in 2 parts of water. The following formula

is recommended for hypodermatic use : *R*.—Quinine hydrochlorate (basic), 3 parts ; antipyrine, 2 parts ; distilled water, 6 parts. Mix and dissolve by the aid of a gentle heat. In order to prevent pain following the use of the above injection, a 2 or 3 per cent. solution of cocaine may be added.

A NEW COUNTER-IRRITANT. A patent has recently been applied for to cover the manufacture of a new counter-irritant, which is prepared by percolating powdered capsicum with hot petrolatum.

OINTMENT FOR ITCHING SKIN DISEASES. *R*.—Zinci oxidi, \mathfrak{v} ij ; carbolic acid, grs. xij ; salicylic acid, grs. xx ; lanolin, \mathfrak{v} vj ; vaselin, \mathfrak{z} ij. *M*.

A NEW ANTISEPTIC. Sulpho-carbolate of silver occurs in small prismatic crystals, colorless and odorless, and contains a trifle more than 28 per cent. of silver. It is an efficient antiseptic, and in ophthalmic practice is to be preferred to the nitrate on account of its greater solubility and non-caustic properties.

CARBOLIC SALVE CONTAINING CALOMEL. *R*.—White wax, 8 ounces ; lard, 24 ounces ; carbolic acid, $2\frac{1}{2}$ ounces ; calomel, 4 drachms ; camphor, 1 drachm. *M*.—*Phar. Era*.

DECOLORIZED TINCTURE OF IODINE. A decolorized tincture of iodine does not contain free iodine, and it is, therefore, by no means as powerful a counter-irritant as the original tincture, which is a simple solution of iodine in alcohol. As a local discutient medical authorities state it to be of no more value than a solution of iodide of sodium or ammonium in water.—*Phar. Era*.

It is estimated that one-half of the world's production of quinine is consumed in the United States.

ANTIPYRINE IN OPHTHALMIA. In those cases of ophthalmia in which the discharge is profuse and the pain and inflammation are great, a 25 per cent. solution of antipyrine, used three times daily, is said to afford great relief. This is due in a great measure, no doubt, to the antiseptic and analgesic virtues of the drug.

ANTISEPTIC OINTMENT. *R*.—Iodoform, \mathfrak{z} j ; acid boracic et antipyrine, \mathfrak{aa} \mathfrak{z} v ; petrolatum, \mathfrak{z} vi. et \mathfrak{z} ij. *M*.

THE cancer germ, *leydenia gemunipara sehaudin*, is the name given to a parasite amœboid rhizopod, which Berlin professors have recently found in the fluid taken from patients suffering from cancer of the stomach, and which they think may possibly be the cause of the disease.

WINE OF CASCARA SAGRADA. A gentle laxative and tonic wine suitable for dogs and other small pet animals, may be made by macerating one part of fluid extract of cascara sagrada in eight parts of sherry wine. After macerating for eight days and filtering, the mixture is ready for use.

LASSAR'S PASTE FOR ECZEMA. *Ry.*—Pulv. acidi salicylici, grs. lx; pulv. amyli et zinci oxidi, aa ʒiij et grs. xx; petrolatum, ʒvj et grs. 40. *M.* This paste is extremely useful in the early and moist stages of eczema..

A STYPTIC. Antipyrine in powder applied to a bleeding surface acts as a prompt styptic.

CONTAGIOUS CEREBRO-SPINAL MENINGITIS. Recently a virulent outbreak occurred in a barn containing forty head of draught-horses, and of which number three had already died, was effectually checked by thoroughly washing the interior of the building with boiling water containing two ounces of carbolic acid crystals to each gallon. None of the remaining horses was affected after this method of disinfection had been employed.

PHOSPHORIC ACID FOR FOUL ULCERS. A 10 per cent. solution of pure phosphoric acid in distilled water is highly recommended in human practice as an application for foul ulcers of a scrofulous or tuberculous nature. The fluid can also be used hypodermatically in hypertrophied glands.

ANTISEPTIC SURGICAL DRESSING. *Ry.*—Extract eucalyptus, fl., 2 parts; spt. vini rect., 6 parts. *M.* An ointment consisting of oil of eucalyptus 1 part and vaseline 4 parts makes an excellent dressing for all forms of skin diseases.

LOCAL ANÆSTHETICS. As a local anæsthetic in the removal of small tumors, the opening up of fistulous tracts, etc., a mixture consisting of antipyrine, 2 parts; cocaine, 1 part, and water, 10

parts, is highly recommended. A 50 per cent. solution of anti-pyrine alone may also be used for this purpose.

EXCITING CAUSE OF HYDROPHOBIA. Dr. Grigorjew believes (*Centralblatt f. Bacteriologie*) that the exciting cause of hydrophobia is not a bacterium, but a body belonging to the protozoa. He has isolated from animals suffering from rabies a body with slow amœboid movements and exhibiting extension of pseudopods. Its action may even be modified by the presence of bacteria.

POWDER FOR WOUNDS. A mixture consisting of equal parts of iodoform and calomel is an excellent application for recent wounds, etc.

SOLVENT ACTION OF BORIC ACID. It has been found by Berrins (*Rep. de Phar.*) that boric acid increases the solubility in water of thymol, phenol, and salicylic acid. The solubility of the former is doubled, while that of salicylic acid is increased more than eightfold.

HALL'S SOLUTION OF STRYCHNINE. *R.*—Strychnia sulph., grs. xvj; sp. vini rect., ℥vij; aq. pura, ℥vij; acetic acid, ℥iv; tr. cardamons co., ℥iiss. *M.* Rub the strychnine to a fine powder in a Wedgewood mortar, then dissolve with the acetic acid; add the alcohol and water and tincture of cardamons, and filter. Each ounce contains one grain of strychnine. This solution is a convenient form for administering strychnine in veterinary practice.

FOR UTERINE INERTIA. Pure glycerin introduced into the os uteri, or even into the rectum, during parturition acts promptly in relaxing the rigid os, and also increases the expulsive action of the uterus.

BARBADOES ALOES NOT IN THE MARKET. The *Myer Brothers' Druggist* states, upon reliable authority, that true Barbadoes aloes is not an article of commerce, none having been permitted to be exported for the last ten years. What now sells as such is a product of Curacao, which closely resembles the genuine.—*Western Druggist*.

PURE AIR. Mountain-climbing scientists have ascertained that but few microbes are found at an altitude of 2000 feet, and absolutely none are found at an elevation of 5000 feet.

REPORTS OF CASES.

ARYTENOIDERAPHY—A NEW SURGICAL TREATMENT FOR ROARING.

BY L. A. MERILLAT, V.S.

CHICAGO, ILL.

History. This new surgical procedure originated at the surgical clinics of the McKillip Veterinary College during the session of 1897-1898. The first operation was performed November 18, 1897. It was first advocated by Dr. M. H. McKillip, Dr. W. E. A. Wyman, and the writer.

On account of the low percentage of recoveries, arytenectomy had long since been excluded from the category of surgical operations at the clinics, but the continual appearance of such cases induced the department of surgery to undertake a series of experiments along new lines.

During these experiments the idea was conceived to fasten the arytenoid cartilage to the lateral wall of the larynx, so as to increase its lumen to a degree equal to its lumen during a forcible inspiration. This was done by pinning it to the thyroid cartilage by means of a silver wire. This simple procedure proved to give only temporary relief, as the presence of the wire caused hypertrophy of the cartilage to such an extent as to obstruct the passage quite as much as before the operation. Various other sutures applied in the same manner proved to give the same results. Examination of the parts in each case ten, twenty, and thirty days after showed the arytenoid cartilage dangerously enlarged. It was, therefore, evident that sewing through the body of the cartilage must be abandoned.

In the next experiment the vocal cord was excised and the cartilage fastened outward by passing a suture, not through the cartilage itself, but through the mucous membrane at its very edge at the point where the vocal cord is attached. The operation performed under general anæsthesia, with the patient in the dorsal position, is divided into three steps, as follows :

1. Laryngotomy, or opening the larynx so as to expose its internal aspect. The incision through the integument and muscles is made slowly and carefully and all hemorrhage arrested before making the laryngeal incision. The latter incision is confined to the cricoid cartilage and the crico-thyroid membrane, or in other

words, from the first tracheal ring to the thyroid base (Pommum Adami).

2. Excision of the vocal cord. With the retractors the incision is carefully dilated, the cord pulled upward with a tenaculum, and excised with a curved scissors.

3. Arytenoideraphy proper. A strong silk suture armed with a curved needle is passed through the very edge of the cartilage at the insertion of the vocal cord, then through the crico-thyroid ligament and back to the point of insertion. Firmly tying the suture in a double surgeon's knot completes the operation.

STOMACH-STAGGERS IN HORSES.

BY H. W. SMITH, V.S.,

PASS CHRISTIAN, MISS.

THE spring and forepart of the summer in this section were exceedingly dry, and what little farming or gardening that was done was as near a total failure as could be. It was noticed by many that, although the grass and many other things were suffering, the trees, shrubs, and many under plants were of an unusual greenness. When the rains did set in they were very heavy, and two or three weeks afterward flatulent colic was rife and some deaths occurred. The cause of these cases was laid to the Mexican clover, which is abundant here, and used for haying; yet all grasses grew rapidly. Soon two bovine cases occurred which were spinal meningitis. Then reports came to me from distances that horses were dying of a strange disease, and from descriptions I concluded that the cases were those of the disease aforementioned. A case occurred right here, and I saw it. It was staggering around the yard in a half-dazed manner; the pulse below the normal, and the breathing appeared to be increased. When touched ever so lightly over the spine the horse would bend nearly to the ground; the upper lip was curiously elongated. This I thought was meningitis. The next day there was a yellow, oily, and very offensive discharge from the nostrils, and a tinkling sound could be heard at the base of the windpipe. It was, in my opinion, a case of impaction of the stomach, and before he died he tore everything to pieces.

In the next case the delirium was the first symptom. There have since been many deaths, but paralysis in none. Now, on Sunday, I saw a horse that went down quickly; the symptoms were much

the same as in other cases; the pulse was 38; respirations 20; temperature appeared to be normal; could drink; pulsation in jugular vein very pronounced, and grinding of the teeth nearly continuous. The next day the discharge from the nose was very offensive; the tongue was as limp as a rag; the power to move the jaws was gone, and the mouth was full of maggots. This horse passed manure that contained beets, pieces of dry Bermuda stems, and fine straws in abundance, that were from an inch to two inches in length, oak-leaves that had not a mark of the teeth, and pieces of paper-like bark of pine of the size of a silver dollar. Could move the limbs, and offered resistance when the tail was raised, and was conscious of the movement of the hand before the eyes, yet was unable to stand.

All the cases much resemble meningitis, but are not, and are, to my mind, nothing but stomach staggers. There have been many cases along this coast, nearly every one of which has been fatal. Is there any successful way to treat these cases?

[These cases correspond in every particular to the many reported enzoötic outbreaks of the so-called cerebro-spinal meningitis. The condition of ingesta referred to indicates loss of deglutition of liquids many hours before the animals are unable to swallow solids. Will any of our readers kindly suggest further light and treatment recommended.—EDITOR.]

Present experiments by the Bureau of Animal Industry in dipping cattle for removal and destruction of the ticks (*Boophilus bovis*) are with a refined paraffin-oil, associated with other products. Recently eleven carloads of cattle were dipped at Fort Worth, Texas, under the supervision of Dr. Rice P. Steddom, of the Bureau of Animal Industry, and shipped by order of the Illinois State Board of Agriculture and Secretary Wilson, of the United States Department of Agriculture, to Rockford, Ill., and there placed on several farms with native cattle. So far the experiment is reported as a complete success, as the dip either removed or killed every tick on the dipped cattle. Should further experiments prove this conclusively, the cattle business in the Southwest will be revolutionized.

A better appreciation and closer adherence to regulations are reported this year along the Texas-fever quarantine-lines. Texas fever has been somewhat prevalent in Kansas, taken north by Southern cattle too late in the season.

EDITORIAL.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

ON the thirty-fifth anniversary of the United States Veterinary Medical Association was born the American Veterinary Medical Association at Omaha. It enters upon its career in the height of manhood, at the zenith of National Association power. The history of the United States Veterinary Medical Association has been made and recorded, and with many trials and vicissitudes counted among its experiences, yet the Association under its new name owes all its acquired strength and power to its parent. Reared and fostered in the earliest history of veterinary science in our land, it has counted among its list of members the strongest and most progressive members of the profession. On its roll of membership may be found the names of those who have led in the rôle of advancement and progress in every aspect of our professional progress. In teaching, in higher professional attainment, in the field of surgery and medicine, in journalism, in the building up of American veterinary literature, her members have attained honor, fame, and renown, and these priceless records fall to the heirship of the new and broader Association. This history, these records of work well done, these achievement of our profession in nation, State, and city, come to the Association of the future, charged with weighty responsibilities for us to carry and discharge with equal fidelity. Well it is that we can say and feel that in the All Americas now to make up our organization, the strength in numbers and in individual power never was greater and more united in the common purpose that keeps us together, of bettering our profession; and the future will, as surely as the passing of the noonday sun of to-morrow, write on its pages a record of greater advancement, progress, and power.

Let the veterinarians of the All Americas now add their strength and worth to the American Veterinary Medical Association, and veterinary sanitary science, surgery, medicine, education, journalism, and allied branches of our work will move forward with rapid strides and fittingly close the work of the nineteenth century.

Veterinarian C. D. McMurdo, of the army, sent a special report to the Association as to the true condition of army veterinarians.

Army legislation was dealt with forcibly, and the War Department was called upon for explanations of why our profession was so treated.

President Salmon's address was a masterly one, and a deep and lucid presentation of the advancement of comparative medical science.

Tuberculosis, Texas fever, hog-cholera, and swine-plague, were themes of the address treated of in a light of the greatest importance scientifically and commercially.

Committee on Intelligence and Education's report was presented by the Chairman, Dr. Leonard Pearson, and was replete with excellent thoughts and suggestions.

Not a State east of the Empire Commonwealth was represented at Omaha. For twenty-five years this was the centre of membership of the U. S. V. M. A., and in the territory of New England are still to be found a large percentage of the oldest members in years.

The Omaha meeting exceeded the highest expectations of any of those who were present in the splendid programme provided; and Omaha will be long remembered by those present as having covered herself with honor in the royal manner in which she entertained her guests.

The JOURNAL is glad to note the return of S. Brenton to the teaching staff of the Detroit College of Medicine, Veterinary Department. Associated with Dr. E. A. A. Grange and others, this school is sure to be strengthened in many ways and become a valuable factor in higher veterinary education.

NECROLOGY.

A. L. HUNTER, V. S., Watkins, N. Y., died August 15, 1898, of pyæmia. The deceased was thirty-seven years old; a graduate of the Ontario Veterinary College, class of 1885, and a member of the New York State Veterinary Medical Society. He enjoyed a good practice; was active in political and agricultural interests of his district. He leaves a widow, but no children.

DR. L. M. BIGNELL, formerly of Philadelphia, Pa, but recently of Woodstown, N. J., where he was connected with one of the large breeding farms, died some weeks ago. Dr. Bignell was a graduate of the American Veterinary College, class of 1886, and while little known among association circles, he had gained for himself an enviable reputation as a successful practitioner.

AT OMAHA.

THIRTY-FIFTH ANNUAL MEETING OF THE U. S. V. M. A.,
SEPTEMBER 6, 7, 8.

Members Present: Drs. C. A. Cary, Auburn, Ala.; J. C. Norton, Phoenix, Ari.; A. J. Savage, Colorado Springs, Col.; C. B. Robinson, D. E. Salmon, Washington, D. C.; A. H. Baker, L. A. Merillat, Chicago, Ill.; J. R. Mitchell, Evansville, Ind.; T. A. Bown, Chariton; F. H. P. Edwards, Iowa City; G. A. Johnson, Sioux City; John McBirney, Clarinda; J. Miller, Ottumwa; G. A. Scott, Independence; L. U. Shipley, Sheldon; M. Stalker, Ames; H. E. Talbot, Des Moines; G. M. Walrod, Storm Lake; S. S. Whitbeck, Decorah, Iowa; S. L. Hunter, Ft. Leavenworth; C. B. McClelland, Lawrence; S. Stewart, Kansas City, Kansas; J. W. Jameson, Paris, Kentucky; C. W. Heitzman, New Orleans, La.; W. J. Hinman, Winnipeg, Manitoba; A. W. Clement, Baltimore, Md.; S. Brenton, Detroit; Geo. W. Dunphy, Quincy, Michigan; J. N. Gould, Fairmont; C. C. Lyford, Minneapolis; M. H. Reynolds, St. Anthony's Park, Minnesota; John W. Connoway, Columbia; John Forbes, St. Joseph; T. E. White, Columbia, Mo.; M. E. Knowles, Helena, Montana; C. M. Day, A. T. Peters, Lincoln; Don C. Ayer, H. L. Ramacciotti, Omaha, Neb.; Wm. Herbert Lowe, Paterson, N. J.; R. R. Bell, New York City; W. H. Kelly, Albany; James Law, W. L. Williams, Ithaca, New York; W. Horace Hoskins, Leonard Pearson, Philadelphia, Pa.; T. Bent Cotton, Mt. Vernon, Ohio; T. A. Bray, El Paso, Texas; S. B. Nelson, Pullman, Wash.

New Members Present: Drs. E. M. Nighbert, Mt. Sterling, Ill.; J. I. Gibson, Denison, Iowa; John S. Anderson, Seward; L. P. Beechey, G. R. Young, Omaha; J. J. Drasky, Crete; Fred. Evans, Grand Island; V. Schaefer, Tekamah; John D. Sprague, David City; W. M. Taylor, York, Neb. Chas. E. Cotton, Minneapolis; S. H. Ward, St. Cloud, Minn. H. A. Christmann, Milwaukee.

Visitors: Ladies present—Mrs. L. A. Merillat, Mrs. H. Sorby, Chicago, Ill.; Mrs. J. I. Gibson, Denison; Mrs. C. J. Hinkley, Odebolt; Mrs. G. A. Johnson, Sioux City; Mrs. P. O. Koto, Forest City; Mrs. D. H. Miller, Harlan; Mrs. S. S. Whitbeck, Decorah; Mrs. G. M. Walrod, Storm Lake, Iowa. Mrs. S. Stewart, Miss Belle Stewart, Kansas City; Mrs. T. E. White, Columbia, Mo. Mrs. C. M. Day, Mrs. A. T. Peters, Miss Martha Peters,

Miss Alma Peters, Lincoln; Mrs. F. Draski, Crete, Neb. Mrs. William P. Allen, Mrs. W. Horace Hoskins, Philadelphia, Pa. Mrs. T. A. Bray, El Paso, Texas.

Members of the Profession Present.—Drs. J. Dunleavy, Denver; L. W. Young, Mr. Harold Sorby, Chicago; Drs. J. E. Brown, Osloosa; B. Fisher, Preston; W. R. Fullerton, Dubuque; H. M. Gillian, Mason City; J. W. Griffith, Cedar Rapids; R. R. Hammond, LeMars; S. K. Hazlek, Oelwein; C. J. Hinkley, Odebolt; S. W. Johnston, Carrol; W. G. Jones, J. A. Vincent, Shenandoah; C. B. Knowles, Glenwood; W. F. Knowles, James; P. O. Koto, Forest City; D. H. Miller, Harlan; J. J. Miller, Sioux City; S. T. Miller, Shelby; F. M. Roys, Manning; J. O. Simcoke, Stuart; H. C. Simpson, Denison; C. E. Stewart, Chariton; H. S. Stewart, Oakley; A. C. Wood, Council Bluffs, Iowa. J. H. Cock, Ottawa; G. R. Conrad, Sabetha, Kansas; S. H. Ward, St. Cloud, Minn. H. M. Burgess, South St. Joseph; L. D. Brown, Hamilton; W. A. Heck, James Wilson, St. Joseph; J. C. Milnes, Kansas City; A. B. Wilmoth, Chillicothe, Mo. B. C. Barber, W. A. Thomas, George P. Tucker, Lincoln; A. M. Blackwell, L. Clarke, S. E. Cosford, A. M. Waring, Omaha; A. Bostron, Minden; P. T. Bowers, Hastings; N. V. Byers, Osceola; J. Hagerty, Tapeer; D. Langford, Tekamah; C. A. McKim, Norfolk, Neb. Mr. W. P. Allen, Philadelphia; Drs. J. C. Foelker, Allentown; W. P. Phipps, Mr. T. J. Phipps, Lionville; Dr. B. M. Underhill, Media, Pa. Dr. R. S. Heer, Plattsville, Wis.

Elected to Membership: Drs. John S. Anderson (Chicago V. C.), Seward, Neb.; W. N. D. Bird (K. C. V. C.), Arkansas City, Kan.; Levi P. Beechy (Ont. V. C.), Omaha, Neb.; A. E. Behnke (Chicago V. C.), Milwaukee, Wis.; S. E. Bennett (Vet. Dept. O. S. Univ.), Kansas City, Mo.; John S. Buckley (A. V. C.), Armour Packing Co., Kansas City, Mo.; Jas. Bullivant (Ont. V. C.), Spokane, Washington; A. O. Cawley (A. V. C.), Milton, Pa.; H. A. Christmann (Vet. Dept. Univ. of Pa.), 193 Eleventh Street, Milwaukee, Wis.; P. D. Coffey (Chicago V. C.), Wellman, Iowa; Chas. E. Cotton (Vet. Dept. Univ. of Pa.), Minneapolis, Minn.; J. J. Draski (Ont. V. C.), Crete, Neb.; Fred. Evans (Ont. V. C.), Grand Island, Neb.; A. T. Everett (Ont. V. C.), Twenty-first and H Street, S. Omaha, Neb.; Edward Fox (A. V. C.), 2823 Hamilton Avenue, Baltimore, Md.; J. I. Gibson (Ont. V. C.), Denison, Iowa; Chas. Cresswell (London), 75 Montclair Street, Denver, Col.; J. W. Griffiths (Ont. V. C.), Cedar Rapids, Iowa; F. F. Hoffman (Ont. V. C.), Brookville, Pa.; J. Otis Jacobs (Univ.

of Cal. Vet. Dept.), corner of Twenty-sixth Street, N. W., Omaha, Neb.; Harry J. Kannal (Chicago V. C.), Rensselaer, Ind.; R. D. Martin (Vet. Dept. Harvard Univ.), Bridgeport, Conn.; Chester Miller (Ont. V. C.), 1124 Park Place, St. Louis, Mo.; John R. Mohler (Vet. Dept. Univ. of Pa.), Blankington Pack. Co., Milwaukee, Wis.; H. G. Moore (Vet. Dept. Ames Agr. Col.), 229 Eleventh Street, Milwaukee, Wis.; F. C. McCurdy (Vet. Dept. Univ. of Pa.), 1315 Broadway, Kansas City, Mo.; E. M. Nighbert (Ont. V. C.), Mt. Sterling, Ill.; Alex. Plummer (Chicago V. C.), Ft. Walla Walla, Washington; M. M. Poucher (Ont. V. C.), Oswego, N. Y.; John J. Repp (Vet. Dept. Univ. of Pa.), 3608 Pine Street, Philadelphia, Pa.; V. Schaefer (Chicago V. C.), Tekamah, Neb.; W. A. Shoults (Ont. V. C.), Gladstone, Manitoba; Thos. E. Smith (N. Y. C. V. S.), 309 Barron St., Jersey City, N. J.; Ray J. Stanclift (N. Y. S. V. C.), Americus, Ga.; John D. Sprague (Chicago V. C.), David City, Neb.; Wm. M. Taylor (Ont. V. C.), York, Neb.; Wm. Thompson (Chicago V. C.), Sioux City, Iowa; W. J. Tomlinson (A. V. C.), Williamsport, Pa.; S. A. Ward (Ont. V. C.), St. Cloud, Minn.; G. R. Young (Chicago V. C.), 1815 Chicago Street, Omaha, Neb.

Reinstated: George W. Dunphy, Quincy, Mich.; G. Ed. Leech, Milwaukee, Wis.

Resigned: Drs. L. McLean, 14 Nevins Street., Brooklyn, N. Y.; W. P. Stranghan, Jewett Centre, N. Y. Resignations not accepted.

Drs. S. K. Johnson, New York City, N. Y.; J. H. Wattles, Kansas City, Mo., expelled for violation of the code of ethics.

Charges against Dr. G. E. Griffin dismissed.

Editor Bell, of the *American Veterinary Review*, responded most excellently on behalf of the profession to the Mayor's genial and cordial welcome.

State Veterinarian Knowles was an interested participant in the convention's work, but could not break his slumbers early enough in the morning to hear the President's address.

Mr. Harold Sorby, of the Pasteur Vaccine Company, of Chicago, was happy in his close touch with the veterinary profession.

Even the Mayor's leather-seated chair was at the command of the members of the convention.

Manitoba was represented by Dr. W. J. Hinman, of Winnipeg, and rejoices much in the Association's new name.

Many were the expressions of sympathy for Secretary Rhoads, of the Pennsylvania State Veterinary Medical Association, who on reaching Omaha was met with the news of the death of his only child, and whose return was under such trying ordeal.

Drs. S. E. Cosford, of S. Omaha, Neb.; G. A. Scott, of Independence, Iowa, and James Vincent, Shenandoah, Iowa, were operators on cryptorchids.

Chairman Peters made several announcements as to the local reception of the ladies. Dr. M. Stalker kindly chaperoned the ladies to the Exposition on Tuesday.

State Veterinarian Clement, of Maryland, has little patience with any one who has a fixed hour for retiring or an early one for rising.

The New York State Veterinary College was well represented by the presence of Professors James Law and W. L. Williams.

Dr. T. B. Cotton, of Mount Vernon, Ohio, has become a regular attendant at convention sessions, and views with much pride the profession's advancement.

Dr. S. B. Nelson, of Pullman, Washington, was the only representative of the Pacific coast, and will wear worthily the new honor of Western Vice-President conferred so unanimously upon him.

Dr. J. C. Norton, Territorial Veterinarian of Arizona, was much interested in the subject of Texas fever. The veterinary sanitary police regulations of Arizona afford ample power for dealing with all infectious and contagious diseases.

Drs. Reynolds, Cotton, Lyford, and Ward were among the prominent veterinarians of Minnesota.

Chairman Peters, of the Committee on Diseases, reported upon actinomycosis, anthrax, black-leg, cerebro-spinal meningitis, glanders, hog-cholera, influenza, parasitic diseases, sheep-scab, osteoporosis, rabies, tetanus, Texas fever, tuberculosis, bronchitis, and strangles.

Colorado sent two of her representative veterinarians, Drs. Jos. M. Dunleavy, of Denver, and A. J. Savage, of Colorado Springs.

State Secretary Ridge, of Pennsylvania, deserves much credit for his active work, sending four applications from resident veterinarians of the Keystone State and two former practising veterinarians of Philadelphia, now engaged in Federal work in Wisconsin, more than one-seventh of the total applicants.

New Jersey's amiable representative, Dr. Lowe, of Paterson, will again "sit on the chest" for another year, receiving a unanimous re-election.

Dr. J. R. Mitchell, of Evansville, Ind., was the only representative of the Hoosier State. Evansville veterinarians have a very successful way of dealing with bad paying clients.

Some nineteen of the members-elect at Omaha were from the Central Western States, including Nebraska, Iowa, Kansas, and Missouri.

Dr. Wm. Dougherty, one of Maryland's faithful representatives of the Association, whether present or absent, never forgets his Association duties. One of the new members enters with his recommendation.

Drs. S. B. Nelson, of Pullman, Washington, and J. C. Norton, of Phenix, Arizona, set their fellow-members a good example as distant attendants upon Association meetings, travelling several thousand miles to our annual gatherings.

Dr. C. A. Cary, of Auburn, Alabama, reported rabies in the South at Knoxville and Nashville, Tennessee, Atlanta, Ga., and Auburn, Alabama. Osteoporosis quite prevalent; pasturage the best cure. Many stables seem to have become infected centres. Dr. Cary reported upon the use of barium chloride in several cases intravenously; when temperature is above normal bad results followed.

The unanimous re-election of Secretary Stewart by a rising vote was a special tribute of appreciation of the untiring service he has given to official duty.

Editor Bell, of the *Review*, was so full of joy over the elegant banquet and the splendid responses to the various toasts, undertook to write home to his wife at an early hour of the morning, lest she should not appreciate the glorious time he was having, and it was noted that he was continually using the wrong side of the blotter, which necessitated a rewriting of his missive.

Great were the fears expressed that we should have to leave in the Midway two of our unusually staid and sober-minded members; but it was a "lambs' frolic," and the camels and feminine attractions in the dusky scenes were entrancing, and only the call of lights out and closed gates sent them back to their hotel beds,

and the noonday portion of the following morning's session with dreamy eyes welcomed their return.

There were a number of faces missed from the Omaha gathering, and frequent were the inquiries after members Liautard, James and Thomas B. Rayner, Faust, Jas. L. Robertson, and others.

The deaths of Dr. D. P. Frame, of Colorado Springs, Colorado, and Dr. W. A. Giffen, of New York City, were reported, and the President directed the Committee on Resolutions to prepare suitable record of the same.

Those who feared the discomfort of warm weather at Omaha will be surprised to learn that the light clothing carried by those from the East was not needed. On the contrary, it was to be noted that the furnishing goods and clothing stores of Omaha were frequented by the delegates in search of heavier underwear and overcoats, for all of which every one was thankful who had been at Nashville one year before.

Editor Hoskins and wife continued their Western trip to Denver, Colorado, visiting many points of interest in the snow-clad Rocky Mountains.

Delegate Dr. J. C. Foelker, of Allentown, Pa., stopped at Keokuk, Iowa, on his return trip, to visit his son, who is in practice in that city.

Veterinarian Williams again continues at the head of the Publication Committee, where he has served Association interests so well.

President Clement makes a record unknown in Association annals in the announcement of all permanent committee appointments on the acceptance of the chair.

The facilities for receiving, keeping, and displaying the complete exhibition of pathological specimens of members connected with the meat-inspection service by the Cudahy Packing Company at Omaha were very much appreciated by the convention, and well deserve the thanks of every member present.

No less than twenty-five States and Territories, the District of Columbia and Manitoba were represented at the convention. Surely a grand showing where less than ten years ago four-fifths of the membership were east of the Allegheny Mountains.

The visiting ladies desire to express through the JOURNAL columns their most sincere appreciation of the courteous attention accorded them by the ladies' reception committee.

Dr. Ayer's specimens were an object-lesson of impressive importance to even those who have not given much thought to the importance of this work.

It is said that the failure to assign Williams, of New York, and Hoskins, of Philadelphia, on the Executive Committee for the ensuing year was a peace project in the interest of maintaining the harmony that prevailed at Omaha.

Nebraska may well be proud of her attendance record at Omaha; no less than twenty-five of her resident veterinarians were present at the several sessions of the convention. Hardly a prominent member of the profession in the State was absent from the meeting.

Forty new members were added at Omaha, representing thirteen States and Manitoba; two members were reinstated.

Editor Heath, of the *Nebraska Farmer*, was an interested visitor at the convention, and was very much delighted at the proposed measures for the control of hog-cholera.

Dr. Don C. Ayer merits the thanks of every member of the profession present at Omaha for the preparation of one of the most complete exhibitions of pathological specimens gathered in the Federal meat-inspection service ever presented for examination by the profession.

Ex-President Salmon made a trip through portions of Iowa after the adjournment of the convention.

Mrs. A. T. Peters, the Misses Peters, and Mrs. Don C. Ayer, were assiduous in their attention to the lady visitors, and added a deal of pleasure to their stay in Omaha.

The attractions of the "Streets of all Nations" on the Exposition Midway and the wiles of the tropical beauties were too much for many of the delegates, and Minnesota and Pennsylvania joined hands and hearts in vying with one another as to which could show these fair ladies the greatest attention.

The evening reception of the first day's session by the ladies of Iowa and Nebraska was an unusually enjoyable feature of the social side of our convention, and brought in closer contact all those who were present, and added another strong link to the ties that bind us together in a common work. The light refreshments around the small tables and the pleasant groups of new-made friends, the dance, and the attractive sweet music were all contribu-

tory to the closer knitting together of those engaged in our work, and the ladies who warmly and cordially second all our efforts. This feature should be maintained in all our future reunions.

Dr. C. Barnwell Robinson, of Washington, D. C., represented the United States College of Veterinary Surgeons, and thinks that Washington should be the next place of meeting.

AT THE BANQUET.

Among others present were to be noted Drs. C. A. Cary, Auburn, Ala.; J. C. Norton, Phoenix, Arizona; C. B. Robinson, D. E. Salmon, Washington, D. C.; A. H. Baker, L. A. Merillat, Mr. Harold Sorby, of Chicago; Drs. L. W. Young, Chicago, Ill.; E. M. Nighbert, Mt. Sterling, Ill.; J. R. Mitchell, Evansville, Ind.; M. Stalker, Ames; W. G. Jones, J. A. Vincent, Shenandoah, Iowa; S. Stewart, Kansas City, Kas.; J. W. Jameson, Paris, Ky.; C. W. Heitzman, New Orleans, La.; A. W. Clement, Baltimore, Md.; Chas. E. Cotton, Minneapolis; M. H. Reynolds, St. Anthony's Park, Minnesota. J. W. Connoway, Columbia; J. C. Milnes, Kansas City, Mo. M. E. Knowles, Helena, Montana; Don C. Ayer, A. M. Blackwell, L. Clarke, S. E. Cosford, Omaha; C. M. Day, A. T. Peters, George P. Tucker, Lincoln; J. J. Drasky, Crete; V. Schaefer, Tekamah; W. M. Taylor, York, Neb. Wm. Herbert Lowe, Paterson; R. R. Bell, New York City; Wm. Henry Kelly, Albany, N. Y.; T. Bent Cotton, Mt. Vernon, Ohio; J. C. Foelker, Allentown; W. Horace Hoskins, Leonard Pearson, Philadelphia, Pa. S. B. Nelson, Pullman, Washington; H. A. Christmann, Milwaukee, Wis.

Nearly sixty covers were laid for those who participated in this very pleasant social feature of the thirty-fifth annual convention.

President Salmon sat at the head of the table, which was arranged in T shape, while the honors at the other end were presided over by the incoming President, Dr. A. W. Clement.

Ex-Secretary Morton, of the Department of Agriculture, sat at the President's left, and in responding to an impromptu toast, briefly reviewed the work of the veterinarian in connection with the Bureau of Animal Industry and the better results obtained when the veterinarians employed were placed within the classified service.

Dr. Spaulding, Health Commissioner of the city of Omaha, referred to the growing importance of the work of the veterinarian in connection with health measures of municipalities, and that

Omaha had already gained much by their employment in the better control of healthful food products for their people.

President Salmon, in a few well-chosen remarks, called attention to certain special features of the work of the Bureau, and strongly contrasted it from a health point of view as the highest attainment in sanitary science destined to preserve the health of our people, while in a commercial sense the benefits derived by those engaged in livestock industries could not be calculated.

Much difference of opinion seems to prevail as to how our annual banquet should be conducted and what should be the cost per cover.

The chef of the Millard Hotel deserves much praise for the very well-prepared spread before the banquetters. The menu was well selected; its preparation all one could desire, though he be an epicure, and the serving of the same with due appreciation of time and the gastronomic powers of the guests.

The following is a list of the specimens exhibited under the consideration of the meat-inspection question :

Cattle. Actinomycosis : Two heads, two tongues, lung, two livers, and glands. Tuberculosis : Lungs, pleura, liver, and lymph-glands. Texas fever : Spleen, liver, skin showing ticks, urine. Disease of the liver : Fluke, two carcass calves.

Swine. Cholera : Two carcasses, bowel, kidneys, lungs, and spleen. Tuberculosis : Lung, pleura, bone, lymph-glands, tongue, and heart. Abscess : By kidney worms, one carcass. Disease of kidneys : Liver hob-nail, echinococcus, inflammation. Pneumonia : Lung, liver, and heart. Skin : Tinea (ringworm diamond.) One extra-uterine pregnancy, pig's head, one bladder, one hog stomach (filled with nails). Measles : Liver, lung, and heart, tenderloin. Cirrhosis : Liver of distillery-fed hog (one of 400, all more or less affected).

Sheep. Liver, lungs, and heart, caseous diseases.

The Eastern delegation of doctors en route to Omaha to attend the annual meeting of the United States Veterinary Medical Association had a rich experience while coming, and the outcome was lots of fun for them at an extra charge of \$2.50 per head. Dr. W. Horace Hoskins, of Pennsylvania, was chosen chaperone of the party, and officiated in an admirable manner until Columbus, Ohio, was reached early Sunday morning, when all got off for breakfast. In returning to the car Dr. Hoskins made a mistake, and, instead of getting on the Chicago train, got on the St. Louis train, and in a

twinkle both trains were moving in almost opposite directions. The doctor wore a light coat and a silk cap, his hat and all his baggage being on the Chicago train. Mrs. Hoskins was with the doctor, and her bonnet was left in the car, together with all her wearing apparel. Just what the mistake cost Dr. Hoskins in dollars and cents no one knows, and he will probably not tell, but it is probable that he had to pay well for his unfortunate blunder. The Chicago train arrived in Omaha early yesterday morning, and Dr. Hoskins' train twelve hours later. Dr. Hoskins lives at Philadelphia, and is editor of the JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES, and a prominent character at all conventions. The Eastern delegation will have lots of fun with him upon his arrival. He had all the sleeping-car tickets in his possession, and they had to pay for berths from Chicago to Omaha. —*The World-Herald*, Omaha, September 6, 1898.

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No. 10.

NAIL-WOUNDS OF THE FEET OF HORSES.

BY ROSCOE R. BELL, D.V.S.,
BROOKLYN, N. Y.

I READ a short paper at the Omaha meeting of the United States Veterinary Medical Association upon the subject of "Acute Indigestion in Horses," and I selected that disease because I considered it most frequently met with in private practice of any we are called upon to prescribe for.

It strikes me that we should know as much about our common diseases as is possible, and should not always be discussing speculative and rare conditions which are interesting chiefly on account of our unfamiliarity with them. That reminds me of a dealer in horse-feed who recently became a successful bidder for supplying one of the departments of Brooklyn. The official who had the disposal of the contract was innocent of any practical knowledge of the subject, and was struck by the liberality of the bid, while the initiated ones were laughing at the imposition. The specifications called for bids for furnishing oats, hay, bran, and oil-meal. When the bids were opened the majority of the competitors gave a legitimate price for each article called for; but when the bid of the individual whose credulity is under discussion was inspected it was found that his figures on oil-meal and bran were ridiculously low, but when it came to oats and hay he was considerably higher than any of his competitors. To the official his bid was the winner; but the other bidders would gladly have presented the department with what little bran and meal they might require during the year, since the bulk of the requisition to be consumed would necessarily be oats and hay. So, too, it seems to me that we are often straining to solve uncommon diseases and conditions

¹ Read before the New York State Veterinary Medical Society, New York City, N. Y., September 15, 1898.

to the neglect of those from which we derive our daily bread and through which our local reputations are made or unmade.

For this reason I bring before you the subject of punctured wounds of the feet of horses, with special reference to their successful treatment according to known methods of antiseptic surgery and therapeutics. For the purpose of saving time in the reading of this paper, and leaving plenty of room for discussion by our members, I shall omit any extended review of the anatomy of the foot, further than to mention those structures most likely to be injured or involved in the inflammation consequent upon the traumatism. Viewing the plantar aspect of the horse's foot, we observe the sole occupying the majority of the surface, somewhat heart-shaped, the triangle at its base being filled by the horny frog, and its sides and apex surrounded by and united with the wall, which is duplicated along the side of the frog to form the bars. Beneath the sole at all points is the laminae or velvety tissue, which is interposed between the horn of the sole and the inferior face of the *os pedis*. Beneath the horny frog there is the fibrous or fatty cushion, a thick elastic body intended by nature to protect the delicate structure of the navicular apparatus and the inferior attachment of the perforans tendon. The distance a nail would have to penetrate the sole before it would injure any of these structures would depend upon its point of entrance. Thus, if anterior to the point of the frog the distance to the sole of the *os pedis* is not more than the half an inch in most feet, while at the posterior third of the frog two inches is about the distance necessary to traverse before reaching the navicular joint. The most prolific causes of these wounds are the stepping upon nails in the streets and from pulling the shoe half off, which shifts its position, and the nails are again driven into the sole. The former are termed "gathered nails," the latter "drawn nails." Drawn nails mostly enter the sole near the wall, and are not so serious as gathered nails. They seldom pass through the lamina, and when they do the inferior face of the *os pedis* receives the force of the nail-point, which, being necessarily blunt, a bruise to the periosteum, with localized periostitis, is the usual consequence, necessitating a longer time to recover, but which is almost certain to follow properly directed curative measures. The most selective point for gathered nails is, in my judgment, upon the sides of the frog near the blending with the bars, at a point one inch posterior to its apex, the direction upward and backward. If the penetration is very deep and the point directed backward the navicular

joint may be reached; if the point be directed more perpendicularly, the semilunar crest of the *os pedis* receives the injury, and in the inflammation which ensues the terminal fibres of the perforans tendons are involved, which may be determined largely by the absence of the lancinating pain that would accompany the joint involvement, and confirmed by the persistency with which the animal walks upon the toe of the foot, in some cases pivoting on the very apex. If the penetration is not sufficiently deep to have reached these structures, it has expended itself in the fatty frog, and the prognosis is more favorable and the period of indisposition less prolonged. Very many punctured wounds do not cause any degree of lameness after withdrawing of the offending body, even though the lamina has been injured, as evidenced by the copious hemorrhage, and, as a matter of clinical experience, a lesser degree of lameness may be anticipated when the hemorrhage is profuse than when it does not occur. This assertion may be explained upon the hypothesis that in one instance the blood which escaped from the injured vessels ran out of the wound, while in the other it is confined inside of the wall and undergoes degeneration due to microbic infection. The old theory that punctured wounds causing lockjaw were due to injury of the nerves must now be relinquished in the light of bacteriological discovery, which holds that the bacillus of tetanus usually comes from the earth, enters the system through the abrasion of the sole, and sets up a ptomain-producing process. I will not contend that the disease does not develop more rapidly when the nerve-sheaths are injured, but they will develop in other tissues. I have been enabled, however, to state to a client that his horse was in no danger of lockjaw from the wound in the foot if it was freely suppurating. Did any gentleman present ever see a case of tetanus follow a nail-wound of the foot where free suppuration was present or had existed? Is not the history invariably that the wound was insignificant and no pus was present?

The therapeutics of punctured wounds of the feet has undergone a radical change in the past decade. For an attendant to have omitted to employ a hot oil-meal poultice to such a condition, no matter what the state of the pathological process, would have been to exhibit extreme ignorance of the fundamental law; but I am glad to say that veterinarians are now using their knowledge and reason, omitting hard-and-fast rules and adopting such measures as are demanded by the conditions present. Antisepsis has taken the place of ignorance, with the happiest results. A veterinarian

called to see a patient from whose foot has just been withdrawn a gathered or drawn nail will have the foot thoroughly washed and dried; pare down the sole or frog, as the case may be, enlarge the opening sufficiently to admit a clean probe, by which he will be enabled to discover to what depth the puncture has been made, and compare the distance on his probe to the visible signs upon the nail (being careful to observe that no portion of the nail has been left in the wound). The wound will then be thoroughly sterilized and neatly dressed in the manner which he has adopted as serving the purpose best in his judgment. My own method is by the use of oakum. A half-pail solution is made of some good antiseptic bichloride, creolin, carbolic acid, sanitas, or whatever has given the best results in his hands. Into this is placed enough oakum to nicely envelope the foot (sole, wall, and heel), and thoroughly saturated, after which the foot is encased in it, and it is held in place by a piece of burlap cut in proper shape, and neatly bandaged by three three-yard, two-inch domet-cloth bandages, making a very surgical-appearing dressing which retains its position as long as circumstances require it. Now, the attendant is ordered to prepare a similar solution every three, four, six or ten hours, as you may wish, and place the dressed foot in it and allow it to remain for a few minutes. In many instances it is inconvenient to have dressings removed, and this method effectually does away with the necessity. If warm poultices are indicated, the solution may be made with hot water, and the dipping of the encased foot is equivalent to a hot antiseptic poultice; if cold applications are the indication, the substitution of cold water, medicated by the addition of an approved antiseptic, will be a submersion of the most approved method. When the surgeon removes the dressing the wound is perfectly clean and aseptic.

Whatever good results are to be obtained from the aseptic conception of treating traumatism may be secured by these means. Complications and unusual conditions are to be met by the laws of common sense, based upon a knowledge of pathology. The frequent involvement of the terminal fibres of the perforans tendon is best treated by the application of the high-heeled shoe, to throw the parts at rest. When the wound has healed, the animal still walking upon his toe, the high-heeled shoe should remain on the foot, and the coronet blistered; if an improvement takes place in a slight degree, lower the heel some and reblister, and, if necessary, turn the horse to pasture, still wearing the elevated heel, in full confidence that recovery will eventually occur. In cases of

joint involvement, continued cold irrigation by antiseptic solution will yield the best results, and when the acute symptoms have subsided blistering of the coronet will send the case further on toward recovery. In case of puncture of the sole of the os pedis, and protracted lameness, it may be necessary to pare down, remove the laminae, and scrape the bone, always adhering to the principle of antiseptis.

OSTEOPOROSIS.

BY GEORGE H. BERNS, V.S.,
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IN 1890, before the Long Island Veterinary Society, I had the privilege of reading a short paper on "Osteoporosis," which was published in the *American Veterinary Review and Journal of Comparative Medicine and Surgery* at that time. In that paper I briefly considered the history, symptoms presented, differential diagnosis, usual unfavorable terminations, pathological anatomy as described by Williams, Varnell, and others, of England, location of stables and conditions under which most frequently found, and concluded by venturing the following theory as to its probable causes:

Considering the cases that have come under my observation, and more particularly the conditions and location of the stables in which these cases were found, I cannot help but conclude that a specific germ, vegetable or animal, or perhaps a gas, the development or generation of which is favored by certain soils and certain conditions, is the most probable cause, and that this substance, whatever it may be, finding its way into the bodies of animals, acts specifically upon the osseous system, and causes degeneration of a destructive character.

From our present knowledge it would be folly to attempt treatment. Prevention, however, should be aimed at; and during the last six months I have made an effort to have all animals showing the slightest suspicious symptoms of osteoporosis removed to other stables, and in all stables where the disease appeared repeatedly I have had the floors taken up, and two or three feet of urine-and-manure-saturated soil removed, the old flooring-boards and sleepers carefully cleaned and disinfected, and a new supply of good fresh sandy soil put down before the floors were replaced. In cases where it was possible to have the floors raised twelve or eighteen

¹ Read before the New York State Veterinary Society, September, 1898.

inches from the ground, I have strongly advocated to owners the advisability of doing so. As these preventive experiments have been tried by me for the limited period of six months only, I am not prepared to say at this time that they are of any special benefit.

During the last eight years a very large number of cases have come under my observation, and the opinion expressed as to the infectious or possibly contagious character of the disease, I think, has been to a large extent confirmed.

As veterinary examiner to the Brooklyn Retail Grocers' Association for over fifteen years, I have had a most excellent opportunity to study this disease among coarsely-bred, small draught-horses kept under conditions seldom met with in any other line of practice. These horses, as a rule, are bought at the age of six, well fed and cared for, but in most cases kept in small, one-story brick or frame structures, without any sewer connections or proper ventilation, with manure-holes frequently in a corner of the stable, and generally situated in the back-yard of a corner grocery store.

The Brooklyn Retail Grocers' Association is an incorporated society with a membership of over one thousand; each member owns at least one horse, and most all of them have their horses protected by insurance in their society.

Brooklyn grocers, as a class, do not believe in swapping horses; therefore, when a young animal finds its way into a grocer's stable, the chances are that he will remain there as long as he is fit for work, and will be penned up in a small single stall, with hardly room to lie down, and compelled to inhale the close atmosphere contaminated with foul-smelling gases and no doubt millions of microscopical organisms generated by decayed wooden floors, and the damp urine-and-manure-saturated soil under the floors from eighteen to twenty hours each day.

Among these horses I have found osteoporosis extremely prevalent, and out of a total mortality according to the records of the society of from 4.5 to 5 per cent. per annum, 1.5 per cent. are caused by this disease alone, the victims either dying from exhaustion when down and unable to rise, or being destroyed as unfit for further use. I believe I am safe in saying that from 5 to 6 per cent. of all the grocers' horses in Brooklyn, kept under conditions described above, are suffering from osteoporosis in more or less advanced stages. I know of several one-horse stables of this kind in which two or three horses, which were examined by me when purchased and found in good general health, developed this disease successively within a year or two.

Now, let us for a moment consider the existence of this disease among horses kept in large, airy, well-ventilated and properly-drained stables, which are obliged to spend from eight to twelve hours a day in harness, and are therefore out in the open air.

Sixteen years' experience as veterinarian to the stables of A. & S., a large dry-good house in Brooklyn, keeping over 125 head of ordinary common-bred delivery horses, has not revealed one case of osteoporosis. During my ten year's connection with L. & S., owning a stable of 150 heavy brewers' horses; fifteen years' connection with O. & L., stables of about 60 head of brewers' horses, and nineteen years' connection with J. H. B. Co.'s stables of about 90 head of brewers' horses, not a single case of osteoporosis presented itself in either of these stables, and I could enumerate twenty-five or thirty more first-class stables in Brooklyn in which from five to twenty-five horses are kept, and no osteoporosis has ever developed.

During the last seven or eight years, in all cases of osteoporosis which developed in small and badly-drained stables, I have had the floors ripped up, the soil under floors removed to the depth of several feet, new clean soil or coal-cinders substituted, new sleepers and floors put down, stables ventilated, manure-pits closed up and placed outside of buildings, etc., with extremely gratifying results. In stables so renovated, in which two or three horses had developed big head successively in three or four years, no more cases have appeared since these simple sanitary measures were established.

Again, I have never seen a case of osteoporosis recover if it was kept in the same stable in which it had developed the disease; but send the animal away to pasture or to another stable in a distant locality, and there is, according to my experience during the last eight years, at least a chance for a good and serviceable recovery.

Some of our best authorities and most careful observers and investigators, as Friedburger and Fröhner, of Germany, W. L. Williams and Faville, of this country, and several others, regard osteoporosis as identical with rhachitis and osteomalacia in its pathological anatomy, and perhaps justly so; but, as both of these conditions are supposed to be caused by defective assimilation or a lack of food containing lime in sufficient quantity, I cannot understand how a bone which has been fully and regularly developed in a colt, remaining in a perfectly healthy condition after the animal is fully matured for a number of years, should become enlarged to two or three times its normal size, as is frequently the

case of the rhami of the lower jaw and facial bones in osteoporosis by simply a want of earthy material in the system. I should think that a deficiency of these constituents would rather tend to produce a diminution in size and, as is the case in osteomalacia in adults, softening of the bones. It seems to me that it requires something that acts as an irritant specifically upon the osseous system, causing metastatic inflammation and the peculiar enlargement and destructive degeneration which are always present; and until this matter is thoroughly cleared up by some of our enthusiastic, painstaking, and highly esteemed investigators, I shall continue to remove my patients to other localities, if possible, and maintain the strictest sanitary precautions.

RABIES, WITH A REPORT OF TWO RECENT OUTBREAKS.

BY A. B. KELLY, D.V.M.,

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SYNONYMS: Hydrophobia. *German*, Hundswuth; tollwuth; wuthkrankheit. *French*, Rage. *Italian*, Arrabiato; rabbia. *Spanish*, Rabioso; mal de rabia. *Roumanian*, Turborea. *Arabic*, Mkloub. *Greek*, Lytta; lyssa.

History. From a careful study of its history, it would appear that rabies was first described in the fifth century B.C. by Democritus¹ and a few other authors of that period. Since then the malady has been known as affecting different species, and in the second century B.C. it was stated² that Aesculapius, the ancient god of medicine, and his two sons discovered its transmissibility from animal to man. This they held as a family secret.

Pausanias, in his work, *Travels in Greece*, alludes to a story concerning Actaeon, in which he was torn to pieces by his fifty hounds when he surprised Diana at her bath, and says that the only explanation could have been that they were rabid. According to recent researches by many investigators, this may be doubted, as it has been demonstrated that rabies does not arise spontaneously, but only by inoculation from a previously affected animal.

Homer is also thought to have been acquainted with the malady, for in his *Iliad* he speaks of the "dog star," or "Orion's dog," as having a malignant influence on man.

Several of these early investigators spent much time on this most important subject, and each thought that he had at last located the seat of the disease, as follows: The stomach (Artemi-

dorus²); the diaphragm (Magnus²); the meninges (Herophilus Cajus²).

In the first century B.C. Celsus undertook to clear up some of the allusions made by previous writers, and, as a result of his researches, concluded that the saliva alone contained the pathogenic material, and, therefore, recommended the cauterization, burning, cupping, or sucking of wounds received from any supposed rabid dog.

At this period every physician tried to devise some means of prevention or radical treatment for the people who had been bitten; consequently many queer and useless therapeutic measures were tried, and some were even adopted as specifics. Among these were hot baths. The victim would be placed in a hot bath and caused to sweat as long as the system would permit. Celsus² recommended hot or cold baths, to bind salt in the wounds, to throw a victim unexpectedly into the sea. Caustics, cupping, sucking, and bleeding were highly recommended, and are to-day.

Among the preventive measures advised were cauterization, suction, and bleeding (Celsus); tree-box (Hippocrates²); removal of the "sublingual lyssi" or worm in the tongue (Pliny²). Pliny also states that if this "lytta" is removed from a pup he will never lose his appetite or get mad; and if this worm is carried thrice about a fire, and given to some person, he will be immuned from rabies for one year and no more. He also alleges that the eating of a cock's brains will prevent the disease.

Some claimed that a pounded cock's-comb, or goose-grease mixed with honey, was highly efficacious as an application to the wounds. Others advised victims of any bite to drown a pup of the same sex as the one inflicting the bite, and to eat the liver raw.

In the enormous list were also found such remedies as to eat the salted flesh of a rabid dog; to apply the ashes of a dog's head to the wound; the application of a maggot from the cadaver of a rabid dog to the victim's body; to wear a dog's heart; to wear a dog's tongue under the great toe in the shoe; to drink the saliva from under a dog's tongue, etc.

Many other such fantastic alleged remedies and preventives were recommended, illustrating the absence of any rational idea as to the true nature of the malady. This affection was supposed to so poison the system that even the urine, if trod upon, would inoculate people, especially if they had any wounds on their feet, and for this they applied the feces from a horse sprinkled in vinegar and warmed in a fig.

One of the most useless of these prophylactic measures was proposed by Columella² in the first century A.D. It consisted of biting off the first articulation and withdrawing the tendons of a pup's tail on the fortieth day after its birth. It seems that the folly and cruelty of this operation should be thoroughly understood by this generation, but we are informed that it is still practised by the ignorant.

That the existence of the malady was well known by some of the early investigators is shown by the following symptoms, as prepared by Caelius Aurelianus², of Numidia, about the fifth century A.D. (?). He obtained his knowledge from Eudemus, Soranus, and others, and set forth his conclusions as follows: "Symptoms: The hydrophobia in man is preceded by extreme irritability, unusual motions of the body, disturbed sleep or absolute wakefulness, indigestion, stretchings, yawning, nausea, imaginary notions of bad weather, and no appetite for drink. To these symptoms succeed, when the hydrophobia begins, a desire to drink (a violent thirst), with terror at the sight, sound, or name of water. The patient is even afraid of fomentations with oil; his pulse is dense (hard), small, and irregular; there are sometimes a small degree of fever, convulsive motions of the stomach, spasms in the precordia, numbness of the joints, and torpor of the bowels; frequent inclination to micturate; trembling and catching of the limbs; voice hoarse, resembling the barking of a dog; spiral posture of the body, like that of a dog lying on the ground; anxiety when any person enters the room, as if apprehensive that he should bring water; redness of the face and eyes; body emaciated; the upper parts pale and perspiring, and the frequent involuntary ejaculation of semen."

Aetius², an ancient physician of Mesopotamia, is credited with having had an accurate knowledge of this disease, as he states that "dogs are naturally hot and dry; that the increase of temperature which the air acquires in the summer months causes them to go mad, and that this madness is called rabies." He also attributes the attacks to the variations in the atmosphere and violent thirst; but this is now known to be a delusion, as dogs do not become rabid from such agencies, but only by infection. We must, however, allow that dogs do become cross and savage from humidity and annoyance, but a bite from such a dog would be no worse than a bite from a normal dog—*i. e.*, the victim could not contract rabies from such a bite.

Etiology. Little progress was made in the knowledge of the

cause of this or any other infectious disease until 1863, when Davaine³ demonstrated that anthrax was due to a specific organism, and that by inoculating animals with this microörganism the disease in question can be reproduced.

We must admit that for a long time previous to this date it was quite generally acknowledged that certain diseases were transmissible by direct contact, but by what means was an unsolved question, and in the same way the cause of the origin of a disease in a new locality was also unknown. This led a great many to believe that all infectious diseases arose spontaneously, and were caused by certain degrees of food, unhygienic surroundings, or weather.

During recent years numerous cases of false hydrophobia, pseudo-hydrophobia, or lyssaphobia⁷ have been recorded by some very prominent physicians. This might give rise to the theory of spontaneous generation, but in reality it is only an hysteria. At times people have been bitten by dogs, and as they neglected the case, and constantly thought of it, their nervous systems were brought into such a state of excitement that the victim actually developed symptoms of rabies, and in some few instances died from the effects. The genuineness of these cases has been disproved by the negative results obtained when animal inoculation was resorted to, and also by the length of the period of incubation in the individual attacked. Such cases have been cured by the so-called "mad-stone," which is in reality any stone that one is able to obtain during such an attack and that the patient can be persuaded to trust. Cases are also reported where people have been reasoned out of these attacks and have made complete and rapid recoveries.⁹ Some investigators state that about one-half the cases in human beings are of this type. Therefore, it is safe to say that one cannot positively assert that any case is one of rabies until he has proved it by animal inoculation. This also proves that we must have some specific agent as a cause of the malady.

The discoveries made by Pollender³ and Davaine encouraged other investigators, and every one was then looking for the specific cause of each and every disease. Success was attained in a great many cases, but unfortunately the specific cause of rabies has not as yet been discovered. Several have succeeded in finding that the nervous system was the principal seat of the virus, and some have claimed to have isolated the germ, but this has not been certainly proved, nor is it generally accepted. The saliva and bronchial expectoration are also found to be very virulent, and it is by these that the disease is spread through the bites of rabid animals.

About 1880 M. Pasteur undertook to prove that rabies was a specific infectious disease, and accordingly made a great number of inoculations from the brains and spinal cords of rabid animals intravenously. This proved to be a very slow and tedious experiment, and was not entirely satisfactory, as some cases failed to develop the disease at all, while those that did develop it required such a long period of incubation, and invariably developed the paralytic form, that the learned investigator sought some more suitable way to produce the disease. He soon discovered that the virus in the encephalon was the most virulent, and accordingly he placed this virus in direct contact with its natural medium. To do this he found that it was necessary to trephine the cranium and inject the virus subdurally. By this method he found that he could, with almost a certainty, produce rabies within a very short time, incubation averaging about fifteen days; whereas, by the intravenous injection, the incubation lasted from several weeks to several months, and sometimes to years. At this time he found that the virus from the encephalon would invariably produce the furious form, while a virus from the myel would produce the paralytic or dumb form. He also discovered that it made no difference from what section of the myel the virus was taken, as its virulence was constant throughout its entire course, and that the disease could be produced from some of the larger nerves, such as the sciatic and pneumogastric. Infection through the milk or semen has not been proven. This series of experiments thoroughly agreed with universal experience, that rabies was caused only by the bite of a rabid animal or by some other means of inoculation.

Rabies, according to Prof. Law, is "an acute infectious disease in carnivora, transmissible by inoculation to all warm-blooded animals, marked by a long incubation, followed by fever, nervous disorders (intellectual, emotional, and motor), and terminating in paralysis; is characterized by optic illusions or delusions, and runs a short course, generally terminating fatally."

Hill⁴ says, "This disease may be truly designated the scourge of the canine race; horrible in its nature, alike terribly fatal to man and beast."

Geographical Distribution. Practically speaking, rabies is found to be well distributed over the whole world, but it is generally conceded that it is more prevalent in the temperate zones, although a few places in these latitudes are said to be absolutely free from it. It is claimed that the disease has never been seen in Australia, but this is probably due to the fact that there is a very

stringent quarantine of three months on all imported dogs at a cost of fifty dollars each. New Zealand, Van Diemen's Land, Azores, St. Helena, Hebrides, Scilly, La Plata, Tasmania, Hong Kong, and Argentine Republic are also said to be free from rabies.

One of the main factors in the prevalence of this malady in the temperate zone is that it is more thickly populated and contains a greater number of dogs than other zones; hence, a greater mingling.

Sex seems to have some influence, not that one sex is more susceptible than another, but that a female dog in season will attract much attention from the opposite sex, causing several males to follow her, and, in their quarrels to determine their superiority, one mad dog will generally succeed in infecting the whole group; hence, it has been stated^s that the ratio is about seven males to one female. Food, habits, and breeds do not appear to have any causal relation to the disease.

Seasons. At present we have great dread of the hot summer months, and call them "dog-days," and in some places the law provides that dogs be muzzled during this period; but from carefully prepared statistics we find that there is a considerable increase of cases during the early spring months. Thus, Bouley^s had 755 cases in December, January, and February; 857 in March, April and May; 788 in June, July, and August; and 696 in September, October, and November. This is due to the fact that spring and early summer is the rutting season for bitches.

Europe has long been more or less affected with rabies, but some sections seem to be more favorable to the propagation of the disease than others. France, upper Italy, and Holland appear to be the particular seats at present, while Spain, Portugal, and Germany appear to have very few cases, the control of the scourge in the latter country being due to the strict muzzle-law. There are a great many more cases reported annually in England than in Scotland. Sweden, Norway, Denmark, Russia, and Lapland were the seats of epizootics of rabies during the years 1815 and 1824. It is widely spread in China, India, and Afghanistan. In Africa it is called mkloub by the Arabs. In Southern Africa the disease seems to be very rare, for only one or two cases of supposed rabies are reported. This is not the condition in Northern Africa, as it prevails in epizootic forms in some of the countries. South America seems to be rather free from the malady, although it visited Chile in 1835, Peru in 1803, and Brazil in an epizootic form. It has made great progress in the West Indies. Mexico is comparatively free from rabies, although

it is known there. In 1768 Boston was the principal seat of an alarming epizootic of rabies in dogs and swine, but we cannot trace accurately the source of the originally diseased animal. Since that time it has been more or less prevalent all over the continent, but more particularly in the New England and Middle States.¹¹ It is claimed to be unknown in Greenland, but supposed cases have been reported in the Arctic region.

Susceptibility. This is essentially a disease of the canine race, the dog, wolf, fox, and hyena being the most susceptible. It is, however, inoculable in cat, horse, cattle, sheep, goat, deer, guinea-pig, rabbit, donkey, mule, hinny, badger, marten, monkey, stag, antelope, prairie-dog, rat, mouse, chicken, pigeon, and man; in fact, all warm-blooded animals. The skunk, in certain districts, is said to be rabific; but this occurs only in circumscribed localities, and manifestly as the result of the introduction of rabies among the skunks of such localities.

According to species, it is determined that the canine are the most susceptible, the bovine coming next in order. Cattle rarely inoculate one another, the infection being spread by rabid carnivora.

The following⁵ will give an idea as to the relative susceptibility of the various species: In Germany, in 1886, out of 578 cases of rabies reported, 438 were dogs, 3 cats, 5 horses, 92 cattle, 32 sheep, 7 pigs, and 1 goat. In Austria, in 1887, out of 858 cases, 769 were dogs. The same year the French authorities recorded 1643 cases in dogs. In Germany, in 1890, out of 708 cases reported, 590 were dogs, 98 cattle, 11 cats, and 9 pigs.

A bite from a rabid animal does not necessitate an inoculation, as the virulent saliva may have been wiped off on the clothing; or, perhaps, several animals bitten in succession, the last attacked being less liable to infection. A bite from a rabid wolf is generally more serious than one received from a rabid dog, as the former usually springs for the throat or face. It has been stated of the people bitten by rabid animals that of those injured on the face and shoulders, 80 per cent. would contract the disease; of those wounded on the thighs or hands, 50 per cent. would contract it; while of those bitten on the legs only 30 per cent. would develop rabies. A greater percentage of men and children are recorded⁶ as having rabies, women being less subject to inoculation on account of their domestic habits and style of dress.

Zuill⁵ writes, "Of all rabid animals the cat is the most dangerous; it jumps at the face and attempts to tear it with the teeth and claws. It no longer fears the dog, which it attacks boldly."

Symptoms. In the human family, as well as in the lower animals, nearly all investigators distinguish but two forms of this malady, namely, the furious and the dumb (paralytic and lethargic⁸).

The period of incubation varies from ten days to three months, and has been recorded⁶ as long as five years, the variations being due to the individual susceptibility, the virulence of the virus, the amount of virus introduced, and the location of the seat of inoculation. If a virus be passed successively through several monkeys, sheep, or hens, it will become attenuated and greatly increase the period of incubation. On the other hand, if we pass it through several rabbits or guinea-pigs, it will be greatly increased in its virulence, hence considerably decreasing the period of incubation.

At the close of the period of incubation a person will be noticed to be rather nervous and irritable; the wound will be red, pruritic, painful, and have a burning sensation; he is very talkative, but avoids speaking of the disease; there will be a slight rise of temperature, 100–103° F., which may fall to subnormal prior to death; general pallor; anorexia; wakefulness, and frightful dreams.

At first the patient will be anxious to drink, but usually fails to accomplish this act, for as soon as the fluid comes in contact with the fauces it is expelled with force, and spasms of the muscles of deglutition and respiration set in.

This is often followed by a tetanic state, with marked episthotonus and temporary cessation of respiration. This may recur with an attempt to drink, or from a stimulation produced by a sharp sound, touch, bright light, breath of air, or the sound of water.

Later the sight, sound, or even the name of water causes terror to the patient, although cases are reported in which there is no hydrophobia—simply the hyperæsthesia and pain, accompanied by the burning sensation, hyperthermia, anorexia, etc.

Some cases are ushered in by severe spasms of the throat, with vomiting, a greenish-brown mixture being thrown up. There is a disposition to be alone, and surliness and hyperæsthesia alternate; satyriasis is marked; urine contains sugar, albumin, and occasionally blood. Repeated attacks rapidly lead to exhaustion and emaciation.

Pulse quick, irregular, small; respirations quick and shallow, a deep inspiration often inducing a convulsive attack; tenacious mucus accumulates in the mouth and fauces; articulation is thick. Later, the convulsive attacks increase in frequency, and death from asphyxia may occur during one of them.

Some cases progress very slowly, the eyes sink, brow sweats, lips become blue, and patient dies slowly from asphyxia. At times there is almost a complete arrest of convulsions prior to death, which takes place from exhaustion. The mind may remain clear to the end.

Occasionally man is stricken with a form of rabies which corresponds to the dumb form of the lower animals. It consists in a progress of the infection, causing paralysis (Landry's paralysis⁶), which attacks the limbs first, and gradually extends cephalad until it reaches the muscles of the neck and head.

We notice that the manifestations in the lower animals are essentially the same.

The dog, when first attacked, will often be noticed to be very friendly, especially to those well known by him; again, he will be morose and sullen; he will refuse food and water, and later will be noticed to be nervous and irritable, and when attacked with the furious form will have a tendency to leave home and take very long journeys. He will sneak along with his tail between his legs, head low, hair roughened, and snapping at imaginary objects. He has no fear of any animals or man, but until he is very much excited will obey his master at command, but will not remember anything for any length of time; the appetite will be depraved, choosing nails, hair, rags, paper, sticks, and cinders in preference to wholesome food; he has no fear of water, as he may be seen swimming streams; he will run about without any destination in view, and will bite anything in his path, but will seldom chase persons or animals unless they disturb him; he will seclude himself and lie down to take a sleep, which is broken by sudden howls and spells of barking; the lower jaw will droop; he will lick dirt, wood, stones, or any cold object; at first the sexual desires are greatly increased; the animal will lick and gnaw at the wounds in his body; the vocal cords become paralyzed, causing a marked change in the voice, generally described as a "howling bark," which is very harsh as well as characteristic, usually uttering three barks at one opening of the mouth; vomition is sometimes present. There is difficulty in defecation, which appears to cause intense pain. Respirations are seldom affected; pulse is increased, and temperature rises somewhat, but, as a rule, it falls subnormal before death. Eyes will roll wildly or strabismus may be present; conjunctiva may be congested, and forehead is drawn into wrinkles. The hyperæsthesia is a very marked feature, the animal starting at the slightest sound. A dog will shrink from a

blow, but will bear it without a whine. Later on, paralysis sets in, being first noticed by the difficulty in swallowing, changed voice, drooping of inferior jaw, protrusion of tongue, and faulty coördination. Any excitement will cause the patient to go into convulsions, which are short at first, but as the disease progresses the intervals between the attacks become shorter, and the paroxysms more severe until the paralysis renders them impossible. During this stage the victim will become rapidly emaciated, and in the last stages the eyes are staring, dull, and sunken. Course, from three to seven days; in rare cases, ten days.

In the paralytic form the hyperæsthesia and delirium, if present, are of such short duration that it is passed unnoticed, the paralysis being the first symptom recognized. There is a loss of appetite, but the patient does not eat foreign bodies. This form terminates fatally in two or three days; never more than five days.

Law⁸ describes another form which is seen principally in pet dogs. He calls it the lethargic form, which is characterized by a profound apathy without absolute paralysis; neither fury nor paralysis is present, but the patient will simply lie about, and not pay any attention to threats, punishment, nor coaxing, and will refuse food or drink, remaining curled up until death relieves him, which is usually from the tenth to the fifteenth day.

The cat seeks seclusion, but is easily aroused, and will then use teeth and claws, inflicting serious wounds.

The wild carnivora will lose their natural fear, and will enter cities and villages and attack men or animals.

In cattle the same general symptoms are present: restlessness, anorexia, loss of power or rumination, anxiety, fear, bellowing, hooking at trees, men, or anything in front of them; horns may be fractured; constant pawing, eversion of upper lip, general wild appearance, conjunctiva hyperæmic, abundant salivation; constipation, feces in small lumps held together by a tenacious mucus; animal, when left alone, will stand quietly, with head low and eyes half closed, but at the slightest sound be in a wild state of excitement; if a dog be brought in sight of the patient he will violently attack the canine, and will then have a convulsion. It is a marked feature in cattle that there is no rise of temperature during the attack. Later, the symptoms are intensified, paralysis gradually sets in, and death relieves the patient in from four to six days.

In the horse we first notice the irritability. He will eat and drink in the early stage, but this soon becomes impossible and

causes paroxysms; the victim will paw, kick, bite, strike, neigh, turn up his upper lip; nose, lips, and forelegs are the seat of intense pruritus; has increased sexual desires; will gnaw the wound, lacerate his flesh, and, during his violence, may fracture his bones, and may attack man or animals with feet and teeth. Temperature, pulse, and respirations are increased, and the attack, as in the previous cases, terminates in paralysis and death. Prior to death, spells of sweating may be noticed. Course, four to five days.

Sheep and goats are affected in the same manner as cattle; they will stamp their feet, bleat often, have a tendency to leave their flock; will butt and hook with the horns and die in paralysis or convulsions. Course, three to four days.

The rabid pig will grunt, squeal, and perform uncontrollable movements; will hide under his litter; may attack men or animals, and has a depraved appetite; increased salivation, which is very foamy; gnaws and bites the wound. Course very rapid, death occurring in eighteen to forty-eight hours.

Poultry are attacked in a similar manner: have a period of excitement, in which they run about aimlessly; will attack man, animals, or birds with feet and bills; will attempt to eat rags, paper, etc., and, as usual, paralysis develops, and death ensues in two or three days.

Pathology. The lesions are extremely varied, and but a very few of them can be considered as pathognomonic. In a recent investigation¹⁰ it was found that the most characteristic lesions were in the hippocampal region of the cerebrum, the oblongata, and the cervical myel, the cerebellum showing less marked changes. The lesions of street-rabies in the dog are more pronounced than in cases produced experimentally in rabbits, owing to the increased virulence obtained by passing the virus through several rabbits, causing a shorter period of incubation and less time for tissue changes. The changes noted were confined to the structure of the nerve-cells. It is of great importance to guard against post-mortem changes, as these may be misleading in comparison with fresh materials. It is therefore necessary to examine the tissues immediately after death, or within a few hours.

The nerve-fibres, either in the white or gray matter, undergo a certain amount of changes. The most marked alterations in the axis cylinders were revealed in the ventro-lateral columns; in some cases they were uniformly swollen throughout their entire length, while in others there were varicose enlargements. The motor-cells of the oblongata and myel in most instances show a marked vacuo-

lation of the cell-body, as do also those of the different layers of the cerebral cortex, whereby the cytoplasm of such cells is completely usurped by the vacuolated degeneration, and in some places the partial solution of the margin of the cell gives an irregular appearance to its outline. The neuroglia cells are also found in this condition. The stimulus which is active in the destruction of the nerve fibres and cells is favorable to the production of the neuroglia, possibly contributing to the destruction of the nerve elements by their pressure.

Numerous alterations have been found in the vascular system, the most common being of an inflammatory character; proliferation of the epithelial cells and of the connective-tissue elements of the outer coat, with infiltration of lymphoid cells. These lesions may be localized at first, but later become diffuse, the changes being so great that at times the channels may be obliterated by blood-clots or hyaline masses. There are also general hyperæmia, fluidity of the blood, and lymph-stasis. Luttkemuller⁶ found a moderate increase in leucocytes, accompanied by an extraordinary number of microcytes. On microscopical examination it is found that there is a migration of leucocytes in the perivascular lymphatic spaces and into the neuroglia of the nerve centres. Microscopic hemorrhages are found near the floor of the fourth ventricle, but may occur at almost any point (Horsley⁶). Hemorrhages have also been observed in the mucous membrane of the stomach, cerebrum, medulla, pons, and spinal cord. The cerebral meninges are hyperæmic, the sinuses gorged with dark blood, with minute extravasations, and there is thickening of the membranes due to interstitial fibrinous exudate and cell-production. There may be a degeneration of the cerebro-spinal epithelium and a replacement of it by blood, granular or hyaline masses. There is often congestion of the fauces, larynx, trachea, pharynx, œsophagus, and stomach.

Acute meningitis may exist with distinct effusions of lymph and even minute hemorrhages and fluid of the ventricles. Migration of white blood-corpuscles in the medulla, and an accumulation of leucocytes in the salivary glands, especially in the parotid glands, in the mucous glands of the larynx, and in the kidneys, are recorded.

Gowers⁶ found pigment granules in some nerve-cells. He also writes that the principal lesions are found near the respiratory centre, hence paroxysmal spasms of the respiratory muscles.

In some instances⁸ the vocal cords in cattle have been ulcerated; foreign bodies were discovered in the mouth and pharynx of dogs; the pharyngeal lymphatic glands were dark from blood engorgement.

The salivary glands are grayish-red and contain many lymphoid cells in their follicles. The stomach is congested and contracted; in the dog it contains no food, but a mixture of indigestible foreign bodies, which is considered a very characteristic symptom. There may be petechiæ or even ulcers on the mucosa. The liver is engorged, and its cells are the seat of granular degeneration. The bladder is contracted and empty, or may contain a small amount of yellow, turbid, albuminous urine.

Any of these lesions may be absent in individual cases, and others may be present. In the paralytic or lethargic forms we would not find foreign bodies in the stomach.

(To be continued.)

SANITARY OR PREVENTIVE MEDICINE.

BY CHARLES W. HEITZMAN, M.D.C.,
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IN its primitive state, medicine comprised a recognition of the relative value of different articles of diet and a use of medicinal herbs and roots, and also of superstitious rites. Since the day of Jenner the trend of medicine has been toward prevention, and to-day modern medicine is prevention. At last has the time-honored axiom "an ounce of prevention is worth a pound of cure" become the cornerstone of the building. Slightly transpose, however, pounds of prevention, and you will not need an ounce of cure.

To win great battles you must have a well-trained army. The physician, no matter how well versed he may be in all rules of sanitation, must have the support of the public. That we may have an intelligent and efficient sanitation, it requires only a campaign of education on the part of the health authorities and the medical profession.

While, perhaps, the general public are aware that things which are not pleasant to the eye or nostrils are unsanitary, they should be taught that the hidden dangers are greatest. I refer to the food- and drink-supply. Let us consider, briefly, typhoid fever, the sanitary shame of American cities, a water-born disease—bad water-supply, bad sewerage, bad milk-supply; tuberculosis, the scourge of mankind, communicable from one animal to another by its products; trichinæ, and other parasitic diseases, and numerous nameless fevers, to which mankind is heir, can be directly traced to his food-supply. While a specific germ may not be isolated in

each case, yet that silent, swift, and deadly ptomaine is present, ever ready to produce anything from a simple bellyache to a fatal septic fever.

As a beginning, let us educate our fellow-man to the importance of having at least the three principal articles of his diet pure. First, meat. Teach him that a rigorous inspection of all meats intended for human consumption is absolutely necessary. Take him with you into the abattoirs; show him the numerous parasites with which the meat he is to eat is affected, and I warrant he will discontinue the use of liver for breakfast for several days, and when he begins to eat of it again he will be sure it has undergone a good inspection. Do not neglect to call his attention to tuberculosis, and that most of the cows having it come from dairies. This will make his milk a little unpalatable until he finds out that the dairies are as closely inspected as the meat. Show him some hog-cholera, cysticerci. Maybe some of his folks have had or have now a tapeworm; perhaps this will shed some light on its origin. Take him to the microscope, and let him see trichinæ; enlighten him as to their history, and, perhaps, without too great a stretch of his imagination, he can remember some peculiar cases of rheumatism that have occurred in his neighborhood. Do not forget the echinococcus. Some people read of more than they see; doubtless he has read of, if not seen, a case of pleurisy that proved a case of hydatid disease. Connect the two cases; it will bear fruit.

Do not neglect the cleanly part of the programme; call attention to clean floors, racks, and utensils, and to the large amount of pure, clean water used in slaughtering. Impress it on his mind, by seeing, that not only is disease looked after, but such meat as is allowed on the market does not get its final scrub with a dirty rag, instead of a nice clean brush being used; that the drainage of the abattoir is perfect, no filthy putrefying mass allowed under its floors to contaminate the meat, and that the wagons used for conveying the products of the slaughter to the market are likewise clean. Do not stop here; take him into the markets; prove to him that these are also under strict supervision; that no meat is allowed to be sold unless it has passed the ordeal witnessed by him.

That man's digestion will be better from this day on. He will eat more, sleep better, feel that at least one public office is doing all in its power to prolong his life; and, mind you, he will tell his neighbors. You will have some more visitors.

Next let us look at the bread-supply. A man should get sixteen

ounces for a pound of the staff of life. The bakery and surroundings are of the utmost importance. Good drainage, good ventilation, and good water which should be analyzed from time to time. Cleanliness is here again a feature of great importance; everything should be immaculate. The operators should be bathed from time to time if they will not do so voluntarily. The flour used should be up to the standard. If the public pay for a first-class article of bread they should have it; not flour adulterated with cornmeal, clay, etc. Each loaf as it comes from the oven should be wrapped in specially-prepared paper, stamped with its proper weight and quality, and sealed. Take your friend in here; he will relish with avidity his roast-beef sandwich next day.

And now let us consider the last but not the least of the essentials of life. Out of the mouths of suckling babes I plead for pure milk. All babies, no matter of what nation, creed, or color, have our sympathy. Their helpless condition, if nothing more, appeals to us, and the wholesale slaughter of these helpless innocents by an impure food-supply is appalling. And were it so that not a single death be due to it, yet think of the number of sleepless nights of aches and pains that could be spared if we gave them a perfect food. And think! all these babies are destined some day, if we feed them properly, to become men and women, voters and mothers—a nation. The healthier the child the healthier the nation. The nearest, or as near, that nature has given us a perfect food, is fresh milk, and it remains with us as sanitarians to see that it is pure. Let us begin by providing comfortable quarters for the cows; good pure water, and plenty of it; cleanliness of surroundings, attendants, and utensils. Next go through the herd of cows, examine each one critically for disease. Do not limit yourself to tuberculosis. While examining the herd do not overlook the attendants. Milk is a great absorbent. And, lastly, examine the food; post yourself as to the best food for dairy-cows, and see that they get it. Do not stop at one examination; make them frequently. Submit the milk to frequent bacteriological and chemical analyses. Do the work honestly, thoroughly, and conscientiously, and the public will soon be with you.

Having once won their confidence and demonstrated to them the necessity for a strict sanitary supervision of the food-products, the victory is won. Other measures will follow; the death-rate will decrease, population increase, and such other radical changes ensue that could not be conceived by Verne in his wildest flights of imagination.

THE SCIENCE *VERSUS* THE ART OF VETERINARY SURGERY.¹

BY ROBERT W. ELLIS, D.V.S.,

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ESSAY-WRITING is not my strong point, so upon being requested to present something at this meeting I have jotted down a few thoughts as they have presented themselves to me, under the imposing title of "The Science *versus* the Art of Veterinary Surgery."

In looking over the field of surgery, with its advances in the various operations for the alleviation of pathological conditions, as well as for other advantages to be derived from them, the question has presented itself to me, Is the art of surgery keeping abreast with the science in general practice? And in looking about me for an answer to the question, my observations have all led me to believe that it is not.

Among the advances we note the introduction of new operations for the alleviation of pathological conditions which were incurable previous to their introduction, as arytenectomy for roaring due to laryngeal hemiplegia, and the still more recent arytenoideraphy for the alleviation of the same condition. And for chronic tendonitis, periostosis of the fetlock and like conditions that resist firing, blistering, and other modes of treatment, there is relief to be obtained by mesoneurectomy and median neurotomy. And besides the new operations that are continually being presented there are new and advanced methods of performing old operations made possible by strict asepsis.

One circumstance which leads me to this unwilling conclusion is that there are comparatively few men in general practice who ever attempt any of the classical operations, and not a few who evade the more ordinary ones, even if their results by other modes of treatment are not so beneficial. Yet I have heard some of those same men earnestly proclaiming to some interested listener the great strides that have been made in veterinary surgery, and telling of the different new operations now in vogue in a manner sufficiently convincing that they were not at all behind in the literature of the day on these subjects, although entirely wanting in the application of the methods they were describing, having never performed them themselves, but contentedly basking in the reflection of the glory of those members of the profession who had. Such

¹ Read before the New York State Veterinary Medical Society, Hotel Metropole, New York City, September 15, 1898.

content, gentlemen, and the feeling that "such operations are all right for Prof. So and So, but are too much for me" is the secret to a great extent of the art of surgery not keeping abreast with the science in general practice. And should each one of us ask ourselves the question, "Am I up to my ideal veterinary operator, or am I on the way to getting up to my ideal?" or, on the other hand, "Am I not possibly behind some of the bold, though perhaps less scientific operators of a decade ago?" which of the two questions, gentlemen, would many of us have to answer in the affirmative? I fear the latter.

Now, the next question that would naturally present itself is, "Why is this so?"

I think to some extent (but to how great an extent I am not prepared to say) the lack of inclination or adaptability to that particular branch of practice which soon results in the feeling of "content" before alluded to. But I believe another and, perhaps, the principal reason is the lack of a sufficient number of the variety of cases in general practice to attain proficiency in some of the more delicate and classical operations. Another reason is that every veterinarian is not fortunate enough in the beginning to have facilities, such as suitable places to operate, etc., or he, at least, feels that he has not, coming as he does just fresh from college, where he has been accustomed to seeing operations performed in spacious operating-rooms with all the necessary appointments, and he is very apt to send the case to some one that has, expecting to be better prepared later on. If he is in the vicinity of a veterinary college he sends the patient there, and thus it is that you will observe house-surgeons in college hospitals almost invariably become good operators by being constantly brought in contact with that kind of work. In other words, a fellow-graduate of the house-surgeon goes out to build up a practice, just as well prepared for his work as the house-surgeon; but finally, when he meets a case that requires some special operation, he reflects that he has not the facilities yet to handle that case, and so sends it to the college hospital. That is an operation lost to him and gained by the house-surgeon, and in that way he runs back while his classmate goes ahead. In other words, the art of surgery with him has not kept abreast with the science, for during all his spare moments he has been reading the current literature of the day, possibly has bought a new book or two on surgery, and has learned with much interest of one or two new operations that have come into veterinary surgery since he graduated, all of which

have undoubtedly been performed at the veterinary schools since that time, also.

These remarks, gentlemen, remember, apply principally to classical operations of the nature of those mentioned in the beginning of my paper, although many of the operations performed by some of us in our everyday work, such as neurotomy, both median and plantar, bitch-spaying, castration of the male, to say nothing of the more common operations of firing, etc., are entirely evaded by some.

Assuming, then, that I am right in stating that the art of surgery does not keep abreast with the science in general practice, you will admit that this is not as it should be. That point being admitted, a remedy of the condition is, perhaps, not out of place for consideration in this paper.

In reference to the first class of practitioners mentioned, viz., those entirely disinclined and consequently unsuited for that particular branch of practice, nothing is to be said, as they have a perfect right to leave that branch for those so inclined if they wish to do so; but for practitioners in general, operating more or less in minor surgery, but who have never attempted the more intricate and, perhaps, we might add, more recent operations, I believe that a realization on their part that the principles of surgery are the same no matter in what class the operation may rank, and that in the higher-class operations simply an application of the same rules and principles is required as in more simple ones (except that, perhaps, more care and skill are required in their application) will tend strongly toward removing the imaginary gulf between the two classes. So that to prepare for a new and, perhaps, difficult operation is simply to make a careful review of the regional anatomy, study the steps of the operation carefully from the literature on it, get the details as to what instruments, etc., are required for the particular operation in question, and then proceed carefully, yet boldly and confidently, knowing that you have the details all in your mind, and feeling that as a surgeon you are capable of carrying them out; and, as a rule, success will crown your efforts.

Again, for those who do not feel disposed to undergo the mental strain of performing a delicate operation for the first time upon a valuable animal belonging, perhaps, to a valuable client, but who would prefer entering upon it with that ease and confidence born of familiarity, veterinary surgery offers us the advantage of being able to procure a valueless subject for experimentation, and in the more delicate operations, especially if a man has never performed

any in that class, I think this plan advisable; for, although he would probably perform the operation all right the first time if he had given the proper amount of attention to the details of it, regional anatomy, etc., by way of preparation, he would certainly perform it better, or perhaps I should say easier, the second time. The presence, in these experimental operations, of a practitioner familiar with it will materially aid in getting the details readily.

The extended day sessions of our national association render it possible to have practical operative surgery as a part of the programme, which is, of course, incompatible with the short evening sessions of our local associations, meeting monthly, quarterly, etc., to say nothing of the indisposition of the members to entering into such a programme after their routine of work all day. They more naturally, after their dinner, prefer sitting in a comfortable meeting-room and listening to a paper or discussion on some interesting subject by fellow-members or themselves entertaining by the same means. And at these meetings, if occasional papers were read by members, describing their particular *modus operandi* in certain operations performed by them, they would, with the discussions that would naturally follow, prove extremely interesting and instructive, and tend to improve our methods of operating by a healthy exchange of ideas (you are all familiar with the evils of in-and-in-breeding), for while we are cognizant of the benefits to be derived from scientific intercourse, which we all concede tends to advance us, we must see to it that we advance symmetrically; for, like growing plants, we have a tendency to lean toward the side upon which the sun shines most, and I feel certain that papers on operative surgery are painfully in the minority, at least in our local association meetings. I am sure that there are not a few of us who would, at least, like to become more familiar with such operations as arytoideraphy, arytectomy, median neurotomy, castration of cryptorchids, caponizing, amputation of the penis, extirpation of the clitoris, and ovariectomy in mares afflicted with nymphomania, and, perhaps, many others which I could mention, were you not all familiar with them, and papers of that order would, I think, act as a stimulus for us to perform more of the higher-class operations either therapeutically or experimentally, and thereby tend to advance the art of surgery equally with the science in general practice.

To sum up, then, I have arrived at the following conclusions:

1. That the art of surgery has not kept pace with the science in general practice.

2. That such is the case through a failure on the part of practitioners to realize that the principles of surgery are the same in all classes of operations.

3. That said principles can be applied in operations of any class by graduates in veterinary surgery by a careful study of the details pertaining to each particular operation.

4. That every practitioner owes it, as a duty to himself and his clients, to keep himself up to date in the art of surgery, just as much as in the use of new drugs for the relief of pathological conditions, so that he may be prepared at any time to perform any operation that may present itself to him.

5. That there are comparatively few papers pertaining to operative surgery presented at our association meetings; and

6. That an increase in such papers would produce an increase of interest and a desire to perform many operations previously considered beyond us, as a result; and the problem of how to advance the art of surgery with the science thereby solved.

Now, gentlemen, while I realize that my paper has not done justice to its title and that I have, at best, made but a superficial survey of the subject which I have attempted to cover, I hope that it will at least suffice to elicit the valuable opinions of some of my colleagues present that we may all profit by them.

THE USE OF LEISURE.¹

BY WILLIAM M. WILSON, V.S.,
HARTSTOWN, PA.

THE subject which I have chosen for my reading this evening is one that, I think, should be carefully considered by the young veterinary surgeon starting in business, especially if he expects to build up a good practice and hold it.

The use of opportunities which are coming to us in the intervals of our future practice is the subject to which I would direct your attention.

The question how those intervals of leisure, the mornings and evenings, holidays and Sundays, and other leisure hours, should be spent, is one of the most important that can engage our attention.

Show me how a young man spends his leisure, and I will undertake to calculate pretty nearly what will be his station in life a few years hence. Show me how a young man spends his leisure, and

¹ Read before the Ontario Veterinary Medical Society, January 19, 1898.

I will show you what sort of character, what sort of success, he is likely to have in business life.

There are two principles that young business men ought to hold themselves to steadfastly, carefully, and intelligently. The first principle is this: Nothing can stand against willingness to work, to do your best regardless of a little extra time and labor. The young man who can steadily, thoroughly, and regularly attend to his business, and be content with doing his best, is going to the front regardless of difficulties. The other principle is that leisure moments can be bound up in the condition of great advance. These leisure hours are to be the test-stones by which your quality and your progress and your success, in the highest meaning of the term success, is to be tested.

You want to be efficient business men ; you want to be resourceful, well furnished all around ; and if it may be your desire to be distinguished in your community, you should make your business prosperous, so prosperous that it will help to make you efficient men, worthy of help in the community in which you live.

The first use of leisure for a young veterinary surgeon starting in business, if he is called to treat a patient and his time is not limited, which it is not likely to be at the start, is to be willing to stay a little longer and watch and study the symptoms, note the action of your medicine ; don't be afraid to throw off your coat and do a little work, and show, by your willingness to do all in your power for the animal, that you are as much interested in the case as the owner. Show by your willingness to work and stay with the animal that you are willing to more than fill the prescribed measure of your service, if you wish to go to the front.

For the purpose and by the means of a large helpfulness, make yourself necessary to the community in which you live ; it is for your interest to do this in order that you may succeed. The man who is accommodating, who is always ready to take a few extra steps, or do a little more work than the occasion demands, is the one who will not get the go-by to try some newcomer.

Do something to help you toward a larger education, better thoughts, and more adequate resources ; something that will help you to understand more about your business in which you are engaged. There is an old Oriental proverb that says, "O, square thyself for use ; a stone that will fit in the wall is not left in the way." So it is with the veterinary surgeon ; if he squares himself for usefulness in the world he will not be found wanting employment.

Some one said to Daniel Webster when he commenced to study law, "There are too many lawyers now." His answer was, "There is always room at the top." So it is in all kinds of business. Some say there are too many veterinary surgeons, but I say every good man makes as much room as he can occupy.

But, after all, you are going to be something more than business men; you are going to be members of society, to be citizens. A good business man is almost by that fact a good citizen. One great question is, "What is a young man going to be worth to himself?" He cannot build a structure any larger than he puts in the foundation. Put in a foundation as large as possible of information, of established knowledge. Make yourself ready to fill any position in your line of profession. The young man who prefers to squander his time and strength in the saloon, or to stand on the street-corner smoking a charity cigar, waiting for something to turn up, or sit on dry-goods boxes whittling and finding fault with everything and everybody but himself, is by no means doing what he has a calling to do.

The young veterinary surgeon should keep his mind bright; he should learn to be orderly, to be cheerful, sociable, obliging, charitable, and kind; to have a plan in life, to use his leisure steadfastly in things that he believes to be most important; to give up the recreations that will interfere with culture, and dissipations that will prevent him from coming to the front. There is a proverb which says, "He that contemneth small things shall fall by little and little." I hold the contrary to be true, also; he who regards these small things shall rise by little and little, and come out to the front before and above all those who are bound simply to float on the current of existence and have what they call a good time.

The *Horseshoers' Journal* is publishing in current numbers replies from many prominent veterinarians on the use of oils, ointments, and various hoof-dressings.

DRIED MILK.—According to a recent chemical analysis, this new food-product is found to be a yellowish, coarse powder, and it is claimed that it possesses all the nutrient qualities of fresh milk, and that one part of the dried product equals ten parts of fresh milk. Its composition is as follows: Total solid matter, 95 per cent.; albumin, 25 per cent.; fat, 24 to 25 per cent.; ash, 5 to 7 per cent.; milk-sugar, 40 per cent.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

SOME STATISTICS RELATIVE TO THE PREVALENCE OF TUBERCULOSIS. (Abstracted for the JOURNAL by Dr. James B. Paige, D.V.S.) The following statistics with reference to the occurrence of tuberculosis among meat-producing animals in Saxony, Germany, were collected by Dr. Edelnaun at the municipal slaughter-houses. They apply to animals from twenty-nine States. The statistics appear in the *Bericht über das Veterinärwesen im Königreich Sachsen für das Jahr, 1896*.

An abstract of the report by Professor Eugene Fröhner is published in the *Monatshefte für Praktische Thierheilkunde*, Band ix., Heft 4.

1. Of 85,000 cattle slaughtered, 23,000 were found tuberculous; 26.7 per cent. The cases were found distributed among the different classes of animals as follows: Of 39,000 cows and calves slaughtered, 13,000 (32 per cent.) were tuberculous; of 26,000 oxen, 6600 (25.5 per cent.); of 20,000 bulls, 3770 (18.5 per cent.), were found affected with the disease.

2. Of 216,000 calves killed, 458 (0.21 per cent.) had tuberculosis.

3. Of 130,000 sheep, 94 (or 0.07 per cent.) were found affected.

4. Among 3250 goats killed, 10 cases of the disease were found (0.3 per cent.)

5. Among 220,000 swine, 2.74 per cent. were found tuberculous, 11,500 cases.

6. 0.34 per cent. of the horses slaughtered were tuberculous; 3500 killed; 12 cases of tuberculosis.

7. Of 400 dogs examined, 1 was found tuberculous; 0.25 per cent.

The total number of cattle in Saxony is 657,000.

Tuberculin has not come into very general use among practitioners. Only 3344 doses were distributed from the Dresden Veterinary College among the veterinarians during the year 1896.

Professor Fröhner calls particular attention to the following tables to be found on pages 177 and 178 of the report:

TABLE I.—OCCURRENCE OF TUBERCULOSIS AND USABILITY OF TUBERCULOUS ANIMALS.

Species of animals.	Number of animals slaughtered.	Number of tuberculous animals.		Numb'r of tuberculous carcasses condemn'd	Parts from tuberculous animals placed on sale in freibank. ¹			Numb'r of salable from the tuberculous animals
		Number.	Per cent. of slaughtered.		Number of pieces sold in uncook'd state.	Number sold after previous sterilizing and melting out of fat.	Numb'r from which tried fat was sold.	
Cattle—total . . .	85,016	22,723	26.72	473	674	617	.....	20,959
Oxen	26,042	6,656	25.55	72	69	171	.....	6,344
Cows and calves . . .	38,688	12,293	31.77	352	557	362	.....	11,022
Bulls	20,868	3,774	18.60	49	48	84	.....	3,598
Calves	215,894	458	0.21	134	88	59	.....	177
Sheep	132,810	94	0.07	6	3	3	.....	82
Goats and kids . . .	3,294	10	0.30	4	.....	.....	.....	6
Swine	419,188	11,487	2.74	194	613	1701	675	8,304
Horses	3,457	12	0.34	2	.....	.....	.....	10
Dogs	397	1	2.22	.....	.....	.....	.....	1
Total	860,011	34,785	.....	813	1378	2380	675	29,539

TABLE II.—DISTRIBUTION OF TUBERCULOSIS AMONG MEAT-PRODUCING ANIMALS.

Species of animal.	The tuberculosis was found as												
	Local tuberculosis		Well advanced and involving several organs.		Generalized tuberculosis.								
					Number of cases observed.	Involving		In acute form with fever and miliary tubercles.	With advanced emaciation.	Without much emaciation.	In both of the preceding cases were tubercles found in the following organs.		
	Flesh or the muscle lymph-glands.	Bones.	Spleen.	Kidneys.		Udder.							
Beeves	17224	2498	44	1763	1194	306	138	3	72	675	318	490	141
Calves	113	62	...	20	263	102	...	1	5	155	149	58	2
Sheep	64	18	...	...	12	5	1	...	...	6	6	...	...
Goats	6	...	1	...	3	...	...	...	2	1	2	1	...
Swine	2737	3643	3	1013	3091	689	536	3	6	1857	1818	333	159
Horses	7	2	...	1	2	1	...	...	...	1	1	1	...
Dogs	1	...	...	...	...	...	...	...	...	...	...	...	...

¹ A freibank is a place under government control where meats from diseased animals are exposed for sale.

DOUBLE (PERONEAL AND TIBIAL) NEURECTOMY FOR SPAVIN.
By Professor Dr. Fröhner. (Translated by John A. W. Dollar.)
Attempts made some years ago to cure lameness resulting from spavin by neurectomy were finally given up as uncertain and useless. Recently, Bosi,¹ of the Veterinary School in Bologna, has again taken up the question of neurectomy in spavin, and published some notable experiments. Bosi recommends simultaneous division of the peroneal and tibial nerves, because his anatomical preparations led him to believe that both nerves are concerned in the innervation of the hock-joint. He has proved the value of his method by six successful cases.

I have tested his method in one case; the animal was sent to the clinique of this college on February 16th of the present year, on account of spavin lameness which had resisted firing. On the right hock was a large spavin, and the animal went very lame in the same leg. The spavin-test confirmed the diagnosis. On February 18th the animal was cast and the tibial nerve divided on the inner surface of the limb a hand's-breadth above the hock. The animal was then turned over, and the peroneal nerve divided in the depression between the extensor pedis and peroneus muscles, a portion being removed. Both wounds were carefully sutured, dressed with arial paste, and covered with an antiseptic dressing. On moving the horse after operation the lameness was seen to have disappeared. On February 20th the wound on the outer surface of the limb had healed by primary intention, but that on the inner was suppurating, for which reason the stitches were removed and the wound dressed antiseptically. The horse was tested at a walk and trot on March 5th, when the lameness had completely disappeared. Being again tested on March 12th, the animal went sound, and the lameness had permanently disappeared.

This case certainly appears favorable to Bosi's method; I shall therefore continue the testing of his operation on a larger number of horses lame from spavin, and later report the results.

I should like, however, at the same time to offer a few observations as to the comparative desirability of double neurectomy and puncture-firing. I do not believe that either procedure will entirely displace the other, but that they will mutually supplement each other. Puncture-firing is so extremely simple and effective a mode of treatment as to deserve preference before double neurectomy, and it altogether obviates the need for casting and turning

¹ Il Nuovo Ercolani, 1897, Nos. 21 and 22.

over the horse, etc. But firing does not cure every case, and where it fails neurectomy may be employed as a last resort. In other chronic lamenesses, like ringbone, navicular ringbone, navicular diseases, etc., neurectomy should only be employed after other methods have received a fair trial.—*The Veterinarian*, September, 1898.

THERAPEUTIC NOTES.

UNDER THE DIRECTION OF W. J. MARTIN, M.D.C.,
KANKAKEE, ILL.

FORMALDEHYDE DISINFECTION WITHOUT APPARATUS.—The Chicago Health Department claims to have obtained better results in recent municipal disinfection by the use of this agent, without any apparatus, than heretofore with the various autoclaver generators and other devices. Ordinarily these, suspended in the room, were simply sprayed with the 40 per cent. solution through a common watering-pot rose-head. A sheet of the usual size and quality will carry from 150 to 180 c.c. of the solution without dripping, and this quantity has been found sufficient for the efficient disinfection of a thousand cubic feet of space. Of course, the sheets can be multiplied to any necessary number.

Cultures, both moist and dry, were exposed for five hours in these experiments, some in sealed envelopes and others wrapped in three thicknesses of sheets, or wrapped inside of woollen blankets. Of the former, none showed growth after seventy-two hours incubation, while the growth was but slight in those wrapped in the blankets. Surface disinfection was thorough, while a much greater degree of penetration was shown in these experiments than that secured by any other method.

The evolution of the gas from the sprinkled sheets is exceedingly rapid, so much so that it behooves the operator to vacate the room within a very few seconds, while after starting the ordinary generator he may remain ten minutes or more without serious inconvenience. When the room is opened, after five hours, the density of the gas is still so great as to preclude respiration until after doors and windows have been opened some little time.

On the other hand, the air is respirable within a very few minutes after the sheet has been removed, and there is no lingering smell of formaldehyde for days after, as is the case where the gas

is evolved by the action of heat. This is due to the fact that a minimum of the paraform is produced in the evaporation of the solution at the ordinary temperature, and this is retained in the meshes of the fabric instead of being precipitated on surfaces to be slowly converted into the gaseous forms through several days.

If further experiments which are now being prosecuted by the department shall confirm the results thus far obtained, the problem of practical domestic disinfection by formaldehyde would seem to be in a fair way to be solved.—*Therapeutic Progress.*

ANTIDIPHThERIA SERUM IN ASTHMA.—Injections hypodermatically of antidiphtheria serum have been successfully employed in relieving and curing asthma in man.

HOOF OINTMENT.—Neatsfoot-oil, 1 quart; mutton-tallow, $\frac{1}{2}$ pound; yellow wax, $\frac{1}{2}$ pound; castor-oil, 1 pint; lampblack, $\frac{1}{2}$ ounce. Mix by aid of a gentle heat. This is an excellent preparation to use in contracted heels, corns, quarter-cracks, etc.; it may be used every other day.

VETERINARY FLY-BLISTER.—Cantharides in powder, ar., ʒijss; oil turpentine, flʒjss; acetic acid, flʒj; wool-fat, ar., ʒv; petrolatum, ar., ʒv. Mix the first three ingredients and allow to stand for twenty-four hours; then add the wool-fat and petrolatum, previously mixed in a water-bath, and mix, stirring until cold.—*Western Druggist.*

ANTI-PYRINE IN SUNSTROKE.—Antipyrine has been successfully employed hypodermatically in treating sunstroke in man. This remedy might also be used with great benefit in treating sun- or heatstroke occurring in horses. A solution containing from 40 to 80 grains to 2 drachms of distilled water, ready for instant use, could be easily carried in the medicine-case during hot weather.

AN ANCIENT HOSPITAL.—Recently, while archæological excavations were being carried on at Baden, Switzerland, the remains of a building that had been used by the ancient Romans as a hospital was discovered. In the ruins were found many medical instruments and utensils, such as probes, tubes, pincers, cauterizing instruments, safety-pins, medicine spoons of bone, silver measuring-vessels, jars and pots for medicines, some even containing traces of the ointments and medicaments which they once contained. There were fourteen rooms in the building.

REPORTS OF CASES.

THREE CASES OF TUMORS, WITH THEIR CLINICAL AND HISTOLOGICAL FEATURES.

BY L. VAN ES, M.D., V.S.,

MOBILE, ALA.;

VETERINARIAN AND DEMONSTRATOR OF NORMAL AND PATHOLOGICAL HISTOLOGY IN THE
MEDICAL COLLEGE OF ALABAMA.

CASE I—The patient, an old mule, came under my observation three years ago. The growth then consisted of a small cystic formation under the skin, situated over the jugular furrow at the lower part of the neck a little above the level of the shoulder-joint. At that time the size of the growth could be materially reduced by pressure, and I suspected that it had some connection with the œsophagus. As the growth did not give rise to any inconvenience, and did not interfere with the usefulness of the animal, I decided to leave it alone.

When I saw the animal again, last summer, the tumor had attained the dimensions of a large cocoanut, and prevented the use of a collar altogether. The skin covering the growth was tense and thin, and at places the hair had entirely disappeared. The tumor did not pulsate, and could not be reduced by pressure, but fluctuated distinctly. The parts below the growth, especially the shoulder and pectoral region, were œdematous, which was probably due to obstruction to the venous circulation. When I inserted a small exploring trocar into the enlargement a few drops of blood appeared, otherwise nothing to explain the fluctuations.

As I was anxious to know the true nature of the contents before attempting any radical operation, I made a small incision and obtained through this a large blood-clot. The removal of the clot was followed by a partial collapse of the enlargement and a profuse hemorrhage, which was stopped with considerable difficulty. The tumor soon regained its former size, and it was evident that I had to deal with some sort of a vascular tumor, and that the only way to get rid of it was to remove it with the knife.

On the following day the animal was secured on the operating-table and, with the necessary precautions as to asepsis, etc., the tumor removed. The skin over the most prominent part, being very thin and adherent to the tumor, an elliptical piece of it was removed with the growth. The base of the neoplasm rested deep

into the jugular furrow, and was almost entirely composed of blood-vessels. There were some eight or ten arteries, some of which were the size of a lead-pencil, and a large vein of the thickness of a man's thumb which could plainly be seen to communicate with the jugular vein. After ligating these vessels the tumor was removed with the scissors. The very large wound, treated on the general principles of surgery, healed very rapidly and kindly, the animal making an uneventful recovery.

The tumor, examined after removal, proved to be largely made up of a number of caverns or cavities which communicated freely with each other and with the bloodvessels mentioned before. The cavities were separated from each other by thin septi, which had the appearance of fibrous tissue covered by structures similar to those of the inner lining of normal bloodvessels. All these cavities were distended by one large blood-clot.

In making the microscopical examination I experienced considerable difficulty in finding sections which exhibited any structure by which to judge the true character of the tumor. I stained and mounted a large number of sections, which proved to be in such a state of degeneration as to be entirely devoid of histological elements. I finally succeeded in obtaining some sections which, when properly stained and mounted, showed the following characteristics: Throughout the specimen the fibrous-tissue elements greatly preponderate, while a large number of bloodvessels are to be noticed. Some of these bloodvessels have their walls thickened almost to complete obliteration of the lumen, while others are thin-walled or dilated. In one section the vessel walls appear to be absent, the blood being contained in intercellular canals, strongly suggestive of sarcoma; in these places the cell arrangement somewhat reminds one of sarcoma. In several places the specimen seems to have undergone mucoid degeneration, while in others the process of inflammation is in progress, or an extravasation of red cells is to be noticed. The walls of the large cavities mentioned above do not, as a whole, show any structure themselves, but seem merely composed of the elements of the tumor proper somewhat compressed. In a few places, however, I find the cavity-wall to be made up like a normal vein.

I will not attempt to give this tumor its correct name, as its characteristics are somewhat confusing and its constituents so much degenerated as to greatly prevent a microscopical diagnosis.

CASE II.—A large horse, belonging to a logging-camp, was brought to me with the following history:

For considerable time the owner had noticed some difficulty in breathing, which gradually became worse, until, some four weeks before, the horse had become totally unfit for work. In the meantime the owner had discovered the cause of the trouble in the shape of a growth in the nose completely obstructing the passage on the right side. After the owner had made an unsuccessful attempt to remove the growth the animal was placed in my hospital for relief.

On examination I found that a large nasal polypus protruded to within about two inches of the nostril, completely closing the air-passage. By looking into the other nostril it was observed that the nasal septum had bulged considerably toward the left side, and it was only with great effort on the part of the animal that respiration could take place at all. There also was some bulging to be seen externally over the site of the tumor. The animal, of course, also showed the usual symptoms of dyspnoea. It was evident that relief could only be obtained by operative means.

To this end the animal was placed upon the table and an attempt made to remove the tumor by traction, hoping that its attachments would give way. This effort, however, was not successful, and I next made an incision into the nasal cavity, at the angle made by the premaxillary and nasal bones. Inserting my index-finger, I experienced some trouble in forcing my way in, as the growth had crowded into the cavity very tightly. I found the tumor extending up the nasal cavity as far as I could reach; but higher up there was more room, and I could move my finger more freely. After searching some time I discovered the attachment of the growth on one of the turbinated bones, and with a little effort I succeeded in breaking off the piece of bone to which the growth was fastened. The lower end of the polyp was now again grasped with a pair of strong vulsellum forceps and pulled out of the nose without any trouble, as apparently the growth was only attached at the one point spoken of. I now stopped the bleeding by the application of a tampon and released the patient from the table. The following day the tampon was removed and the nose irrigated with some creolin water; this treatment was continued until the surgical wound had healed, which took place in a very short time.

The tumor was about ten inches in length, and must have extended almost into the posterior nares. The weight of it was ten ounces. The attachment to the bone was seen about the middle of the growth. The part below this was hard, dense, and moulded

to fit the corresponding part of the nasal cavity. The upper half of the tumor, reddish-white in color, was lobulated and, on account of its soft textures, could be caused to fluctuate. The tumor, which primarily must have developed in the submucous tissue, had a mucous covering and showed evidence of a very rapid growth. As the physical properties of the growths were somewhat different at the various parts, I made sections from the upper, middle, and lower parts of the polypus for microscopical examination.

Sections taken from the upper part of the growth show an abundance of myxomatous tissue, with some fibrous tissue distributed through it, while elastic fibres are also to be noticed. Scattered through the specimens are small nests of epithelial cells in glandular arrangement. Around these alveoli the fibrous tissue appears somewhat denser. Only in one section could bloodvessels be observed. In the middle part there is more fibrous tissue, and the specimen shows a greater vascularity. In some sections the tissue is that of a true adenoma, the alveoli being large and separated by a rather thick fibrous stroma. The elastic fibres present in the upper part of the growth are here entirely wanting. The sections of the lower part of the tumor show, besides the fibrous elements, an abundance of dilated bloodvessels. Through the whole of the sections cellular infiltration is to be seen, while the adenomatous character of the growth above cannot be identified in these parts. I think I am justified in classing this polypus as a myxadenoma.

CASE III.—The patient was a small male pony, about two and one-half years old, and was brought to me by the owner, who told me that about six weeks ago the pony's nose had begun to run and that shortly afterward his face had commenced to swell. As at the time the pony had considerable trouble in breathing, and was falling off in flesh, he had thought it best to find some relief for the animal.

On examination I found that the patient had his face enormously enlarged on the left side, so much that he was considerably disfigured. Respiration took place with a great deal of difficulty, accompanied by a loud snoring sound. There was a profuse discharge of muco-pus, and the submaxillary lymph glands were enlarged. The animal was very emaciated, but seemed to be going about very lively.

From the symptoms presented it was evident that I had to deal with a tumor or an accumulation of pus in the maxillary sinus, involving the nasal passage. In either case relief could only be

obtained by surgical interference. With this in view, and also for the purpose of setting aside all doubts as to diagnosis, I made an opening into the maxillary sinus by means of a trephine. On inserting my finger I found the sinus to be filled by a new growth; this, of course, excluded the diagnosis of an accumulation of pus and gave the case a more serious aspect. I removed as much of the tumor as possible by means of the sharp spoon, and found that the growth contained a large amount of osseous tissue. The growth had seemingly infiltrated the bony structures forming the antrum Highmorii, as it was very easy to scrape through them with the spoon. As the growth extended into the nasal cavity, I also made a trephine opening into the upper part of it, and removed from there a large mass of tumor-tissue, which, however, did not contain anything resembling bone, but appeared to be entirely made up of something resembling fibrous tissue. The tumor extended far into the posterior nares, and, as the patient had now been on the table for some time, I released him and finished the operation the next day, leaving the animal in the standing posture.

The infiltrations into adjacent structures, the rapid growth, the age of the patient, and the presence of bony tissue in the tumor certainly warranted a clinical diagnosis of sarcoma and a most unfavorable prognosis. The after-treatment consisted in daily irrigations with creolin water; the surgical wounds healed very rapidly and the nasal discharge improved, but the cachexia increased, and about three weeks after the operation the animal succumbed in the most miserable condition of emaciation and exhaustion, in spite of the fact that its appetite and other functions remained good until the last.

I did not have opportunity to hold a postmortem, as other duties prevented me from doing so. Sections taken from the soft part of the tumor and stained in lithia-carminé proved it to be a small spindle-celled sarcoma pure and simple. The connective-tissue cells, with large elongated nuclei, forming bundles which intersected each other in different directions, made a beautiful specimen. This part of the tumor is not very vascular; there are, however, some spaces containing blood characteristic of sarcomata. The part of the growths containing bony tissue showed, besides the tissue mentioned in connection with the soft part of the tumor, small plates of bone running parallel to each other and exhibiting something like the Haversian structures seen in normal bone-tissue. I also notice among the spindle-shaped cells some which

approach the round form. In connection with this part of the tumor I may mention that there are large spaces containing blood. I could not obtain suitable material to demonstrate microscopically the infiltration of sarcoma-cells into the normal structures.

COMPLICATED MYOCARDITIS.

BY ROY E. JACKSON, V.S.,
TYLER HILL, PA.

Subject. Holstein cow.

History. Animal for some time acting unnaturally; loss of spirits; anorexia; milk-secretion almost suppressed.

Symptoms. Seen first on November 2, 1897; the animal was much depressed, breathing rather short and quick; respiratory grunt; left flank quite full, and recumbent position assumed most of the time; rumination stopped, eating very little; excretions from bowels scanty and hard. Her temperature was 103° F., pulse 90, full and hard. The jugulars were greatly distended, with distinct jugular regurgitation as high as their bifurcations. Auscultation revealed tumultuous beating of the heart, though the different sounds muffled and indistinct; no friction sounds were audible. Percussion failed to reveal any region where pain was present. No abnormal appearance of the chest walls.

Diagnosis. Myocarditis, with impaired action of the third stomach, the former leading to the latter condition and its sequelæ of unthriftiness and anæmic condition. Prognosis doubtful.

Treatment. A saline purge was given and every four hours half ounce doses each of nitrate of potash and ginger; no action in twenty-four hours of the purge, a second saline cathartic with one-half ounce of gamboge added, with every four hours one-half ounce doses of ginger with two drachms of powdered nux vomica. Marked flatulence intervening, the trocar and canula were employed, with a few doses of sulphuric ether and dilute alcohol, followed by its subsidence. The following day numerous fluid evacuations of the bowels caused the animal to be brighter, breathing easier, though the respiratory grunt continued when she moved. Appetite better, rumination returned, but was irregular. Powdered gentian root, ginger, bicarbonate of potash, of each three ounces, and capsicum, one ounce, to be given in full tablespoonful doses in one pint of water, were prescribed and the animal turned out in fair weather. Her general condition continued to improve

for a time, but, though eating well, she steadily lost in weight. The condition of the heart, jugular pulse, venous distention, continued. On November 18th she was taken with a severe chill, temperature rose to 104° F.; general inappetence. The weather was inclement, and she had remained out, which seemed to account for the chill. A diffusible stimulant was prescribed, and warm clothing. During the night she aborted a seven-months'-old calf. All the digestive symptoms returned, and no relief was obtained by treatment, the cow dying the third day after the second attack.

Autopsy. Lungs congested. Heart enlarged to about three times normal dimensions. Pericardium thickened, but closely adherent to the muscular walls. The muscular walls of the right side, extending from the apex to the base, contained a large abscess holding about three quarts of an offensive, thin, light-colored fluid, with numerous yellow inspissated masses of pus in suspension. The left side exhibited two smaller abscesses, toward the median line, entering the ventral septum. The abscess-walls were thin and flabby; several smaller abscesses were also noted, all containing pus. The contents of the third stomach were very dry and hard. I failed to find any specific cause for these extensive changes.

RUPTURE OF THE MESENTERIC ARTERY.

BY A. F. ABBOTT, D.V.S.,
MANCHESTER, N. H.

Subject. Gray gelding, about twenty years of age.

History. Used for sixteen years in the city fire department in a three-horse hitch. At 10.15. P.M he answered an alarm a block distant, returning at 12.30 A.M., acting in his usual frolicsome manner. At 7.30 o'clock the following morning he winnowed for his breakfast, but was noticed to be ill.

Symptoms. Profuse perspiration, wetting his bedding; body cold, while sweat dripped from his abdomen and ran down his legs; trembling of the entire body. No pain was manifested, but his countenance bore an anxious expression; pulse fair.

Diagnosis. The animal was placed in a box-stall and a diagnosis of internal rupture made, and a fatal prognosis given.

Progress. The perspiration gradually stopped, and in four or five hours he was nearly dry; the nervous trembling almost ceased. The pulse grew gradually weaker and quicker until imperceptible at the jaw. The temperature rose to 105° F.; pain commenced

which gradually increased until death at 5.10 o'clock the morning following the attack.

Autopsy. On opening the abdominal cavity a small quantity of blood escaped. The peritoneum was more or less congested. Rupture of the mesenteric artery near its origin from the posterior aorta had taken place, with the escape of about three gallons of blood, which had separated the peritoneum from the large colon, and was contained in the pocket thus formed. A cul-de-sac was noted near the point of rupture, the size of one's two fists, its contents partially organized, and which was thought to be the result of a previous small hemorrhage, of which he exhibited no symptoms at the time of its occurrence.

[A closer examination would no doubt have revealed this case to be one due to the parasite *strongylus armatus*.—Ed.]

ROTATION OR TWIST OF GREAT COLON.

BY A. E. WILLIAMSON, V.S.,
WINNIPEG, MANITOBA.

On the 19th of last June I was called to see the following case :
Subject. Gelding, nine years old, weight about 1200 pounds.

History. The owner told me the horse had at times been troubled with a stoppage in his urine, and at times showed considerable abdominal pain on being put in the stable at night. He told me he was in the habit of giving the horse potassium nitrate and sweet nitre whenever he saw him showing signs of pain, and in all previous attacks this drench had given relief after the horse had urinated. On this occasion he had administered a drench at night, and on going to the stable in the morning found the horse still showing signs of pain, his bedding all kicked around, and other signs of the horse having been in great pain during the night. I saw the case about ten o'clock in the morning, and found the horse suffering considerable pain from which he seemed to get most relief by lying down stretched out, and he would occasionally lift his head and look back toward his flank.

Treatment. I gave a drench composed of spirits ether nitrate, ℥j; ether sulphate, ℥j; chloral hydrate, ℥j; belladonna, fluid extract, ℥ij; potassium nitrate, ℥ij; aqua, Oj. I passed the catheter and drew off a considerable amount of very dark-colored urine. I gave clysters of warm water several times without much effect, only getting away a few feces in the posterior part of the canal. I re-

peated the drench about an hour and a half after first drench, but without relieving the symptoms to any extent. About an hour later I administered hypodermically eserine, gr. j; pilocarpine, grs. iiij. After waiting for a while and seeing no action from the eserine, I told the owner I thought there was a twist in the great colon. Fifty minutes after injection the horse became very much salivated. I then gave an enema of warm water, but while giving it the horse became partially paralyzed in off hind leg; in a couple of minutes the near hind leg became affected, and he lay down and in a few minutes died almost without a struggle.

Postmortem. Examination of the abdominal organs revealed a twist of the great colon at diaphragmatic flexure of colon, anterior to which bowels were full, posteriorly empty. The walls of the bladder were thickened, and it contained a viscid, darkish substance over the mucous membrane.

RECTAL EXAMINATION IN PROTRACTED CASES OF COLIC.¹

By E. H. BIART, V.S.,
LEAVENWORTH, KAN.

FROM personal observation and conversations with other veterinarians, I have come to the conclusion that we often neglect to make rectal examination in protracted colics; the failure to do so many times results in the unnecessary sacrifice of the life of our patients. The free colon, floating in the abdominal cavity, usually filled with ingesta, is prone to rotation during violent exercise or rolling attacks of colic, producing a mechanical obstruction which can generally be reduced by manual treatment. Spontaneous reduction I believe to be very exceptional.

I have noted the past few months in nineteen postmortems of cases of colic, six rotations, five to the right and one to the left. Many whom I have conversed with on the subject are disposed to ignore or fail to appreciate the importance of rectal examination.

At 6 P. M. on December 22, 1897, a black mare, seven years old, nervous temperament, was brought to me with a severe attack of spasmodic colic. Antispasmodics and a physic ball were administered, some temporary relief following. At midnight the mare was much worse, with highly congested mucous membranes, small, weak pulse, suppression of abdominal murmurs, and marked tympanites.

¹ Abstract of a report read before the Missouri Valley Veterinary Medical Association.

Enema of the lower bowel was quickly eliminated. Rectal examination revealed a condition that at first indicated an over-distended bladder, but a more complete examination located an empty bladder in the normal position. I realized that this must be a rotation of the colon which required some twenty minutes of manual effort to reduce. Prompt relief followed, with expulsion of gases and solid excreta, the pulse became normal, mucous membranes less congested, and by 2 A.M. the animal was practically well. Failure here to have made a rectal examination would no doubt have proved fatal. I trust others will make observations on these lines and report at our annual meeting, so that we may, from many reports, be better enabled to appreciate the importance of this condition.

BACILLI OF BUBONIC PLAGUE.—The recent devastating outbreak of this disease in India, China, and other parts of the Orient has called the attention of bacteriologists to the investigation of the life-history of the bacillus that causes the disease.

“It is said to be a short oval bacillus, usually seen single, sometimes joined end-to-end in pairs, or threes; less commonly as larger threads. It stains more readily at its ends than at its centre. It is sometimes capsulated, is non-sporebearing, is aërobic, and is non-motile. It is found in large numbers in suppurating glands and in much smaller numbers in the circulating blood. It is pathogenic for rats, mice, guinea-pigs, and sheep. The most important source of infection in man is through wounds of the skin.”

The anatomical location of the bubonic lesions in the majority of the cases were, according to a recent report of the Municipal Hospital for Infectious Diseases of Bombay, situated in the femoral and femoro-inguinal and axillary regions of the body. The mortality of the disease was greatest among the poor and ill-fed classes.

MISSOURI agriculturists and stock-raisers demand much of the time of State Veterinarian White in lecturing on various subjects of mutual interest at the farmers' institutes throughout the State.

Dr. F. W. Cook, of Hutchinson, Kansas, is one of the pioneer veterinarians of that sunny State, and holds fast to his original location. He is a warm admirer of the trotting horse and handles many clever roadsters as an accessory branch of his profession.

EDITORIAL.

WHERE IN 1899?

1899 will be an important era in the veterinary world. The Seventh International Congress in Baden-Baden will be a mecca for the learned and progressive devotees of our profession in August, and the work of the American Veterinary Medical Association following in September should awaken us one and all to the importance of earnest work and our duties in association circles.

The place of meeting for 1899 is an all-important matter to be decided, and every thought should be directed as to where the best interests of our association may be conserved.

By general consent it turns to the east in 1899, and Washington, New York, and Boston have all been named for our convening.

The Capital City of our land is always an attractive point, and no member of our association who has not been privileged to see the seat of popular national government, the city of magnificent distances, but will want to embrace the opportunity; and all of those who have looked upon its fair features and attractions will yearn to see it again in its added beauty and ever-changing character of public life, with its many departments of public usefulness, its wonderful collections of relics and curiosities, its boundless storehouses of knowledge; its matchless galleries of paintings and, not the least, its close association with the work of our profession through the Bureau of Animal Industry; the veterinary schools of the nation's capital seat and the many members of our association and of the profession. Its railroad facilities are all that can be desired, and its hotel accommodations such as to afford every choice of elegance and price.

Greater New York in all its acquired power and territory, cosmopolitan in every sense, with every kind and varied attraction, offers much for our consideration. The centre of the commercial life of all Americas, its facilities for receiving and entertaining are boundless and unlimited. Its geographical location favors the entire East, and the facilities of reaching the first city of our land leave none without advantages in this direction. It affords the most prolific sources and means for the study of every aspect of our professional work. Its colleges, private veterinary hospitals, bacteriological laboratories, its medical colleges, its museums,

its dairy interests, its health bureau, its car stables, its corporation stables, its riding schools, its complete boarding and munificent private stables—every type and kind of horse in every kind of work are there to be seen and studied. The city's parks, museums, galleries, gardens, places of amusement are there to afford enjoyment, pleasure, and profit to all. Her rivers and bay, her Coney Island and near-by seaside resorts make it a wonderfully attractive place for a convention city.

The New York State Society and Greater New York's county organization are there to aid the work. The alumni centre of two of the oldest of our American veterinary colleges, with the largest number of active veterinarians in private practice, all enjoying the boundless opportunities of such a great city; its recent entertainment and holding of one of the most successful meetings ever held by the State Society; for many years the place of holding the semi-annual meetings of the U. S. V. M. A., and that it would be as far east as perhaps some of our Western members could well attend, are all potent reasons of strength for New York as our mecca in 1899.

And Boston, the seat of learning, with its hallowed institutions of knowledge that have done so much for the growth and development of our whole land; for twenty-five years the centre of attraction for our annual meeting; the trysting place of a large percentage of those oldest in membership and activity in our association's history; the centre of great movements in the study and control of our animal plagues; its educational work in the creation of veterinary sanitary police systems for her many cities, towns, and boroughs; for many years the centre of one of the strongest State associations in the land, and which would still feel the valued impulse of our presence among them for still grander and better work; rapidly becoming a centre of alumni associations of the various veterinary colleges of North America; without a visit from the parent organization since 1892, and with vivid memories in everyone's mind of that meeting who was privileged to enjoy that happy occasion; with her great seat of learning—Harvard—and her department of veterinary science; her kindred institutions of learning; her wonderful laboratories of scientific investigation; her abattoirs, and every facility for the promotion of scientific thought and action; with a large number of our members in the New England States, and where we should be adding many more; amid environments of land and sea, to attract and benefit all who might be favored by attendance, Boston should be a strong, active

seeker for the convention of 1899. Washington, New York, and Boston. Where in 1899?

THE editorial staff of the JOURNAL sincerely appreciates the many expressions given by the members of the profession all over the land in timely and forcible denials and just support of our editor, Dr. R. S. Huidekoper, as Chief Surgeon of the First Army Corps of Volunteers. The endeavor by base calumnies, distorted reports, efforts of others to shirk just responsibility and place the same on the shoulders of Lieut.-Col. Huidekoper, will be thrown back upon his ignorant and false accusers in due time, and were it possible to punish the yellow journals, who are only curs of journalism, this might well be done. These many unsolicited acts of warm friendship by members of the profession are truly significant of the common bond that binds us together.

Now that our government is spending millions of dollars among our own people for products of the farm, ranche, and loom, let it inaugurate at once a postal savings institution through which the people may safely invest their savings, and let there be no more foreign bond-issues, but our interest remain at home among the people who have made our country what it is by their thrift and industry.

PENNSYLVANIA'S semi-annual meeting at Pittsburg, in September, was one of the most enjoyable in the Association's history. The entertainment by the local committee was extremely pleasant and thoroughly enjoyed by all who were privileged to attend. The luncheon given was generous to the extreme. The banquet tendered by City Veterinarians McNeil and Lacock, respectively of Pittsburg and Allegheny, was spread at Hotel Henry in an exceptionally attractive way, and the menu choice in selection and elegantly served. The special entertainment tendered by our colleague, Veterinarian McNeil, of Pittsburg, by night, was of such a nature as to be long remembered by young and old. All in all, it was a royal reception, a feast of good things of mind and matter, and marks another bright spot in Association history of the Keystone State.

SOCIETY PROCEEDINGS.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

THE annual meeting of the society was held Wednesday and Thursday, September 14 and 15, 1898, at the Hotel Metropole, New York City. The invitations extended by the Committee of Arrangements to veterinarians not members of the society brought a great many visitors who were interested in the papers and discussions; in fact, several of them took active part in the debates. The accommodations at the Hotel Metropole were first-class. The meeting-room, well lighted and ventilated, is capable of seating about one hundred and fifty.

The meeting convened at 11 A.M., Dr. Robert W. Ellis, Secretary of the Veterinary Medical Society of New York County, welcomed the members of the State Society in a very neat and appropriate address:

"Although I have not the honor of being a charter member of this Society, it is not because I did not feel as keen an interest in its organization as I have since felt, and now feel, in its successful perpetuation; for, although not able to be present at its organization in Rochester in 1890, or ever able to attend any of its subsequent northern meetings to apply for membership, when the Society met in this city in 1895 I immediately filed my application and became a member, and in 1896 I was pleased to be able to answer the roll-call in Buffalo, and although I could not meet you in Syracuse last year, to-day I have the honor to welcome you to our city in behalf of the Veterinary Medical Association of New York County, and we desire to extend to you, gentlemen, a hearty wholesouled welcome, just such a welcome, in fact, as each one of us in our domestic circles would extend a visiting parent to our homes. For what other, in truth, is our county association than an offspring of the State organization and a grandchild of the National body? For was not the idea of the organization of a county association conceived at a happy moment in the mind of the county secretary for this county of the State Society, who immediately put his idea into execution by calling a meeting of organization, and that meeting of organization was presided over by the President of the United States Veterinary Medical Association at that time, Dr. W. Horace Hoskins, of Philadelphia, Pa.; so you see that establishes our relationship to the National body. Now, while this feeling of relationship to the State Society naturally adds to our inclinations to welcome you to our field of action, it seems to me that it should also act as a stimulus to every member of the Veterinary Medical Association of New York County as well as to every veterinarian of Greater New York, whether a member of the county organization or not, to seek a closer relationship to the State Society by seizing the golden opportunity that this home meeting affords them to identify themselves with this valuable organization. Many members of the County Association are members of the National Association, and by becoming members of the State Society they supply the missing link that binds together the veterinary profession of the continent—County, State, and National. The County Association has indulged in veterinary legislation to some extent, the jury exemption bill having been conceived by the Chairman of the Judiciary Committee, Dr. O'Shea, also an active member of the State Society, and through his untiring efforts it succeeded in becoming a law. It is in veterinary legislation, gentlemen, that a fusion and harmony of the efforts and interests of the State and County organizations can be of incalculable

worth to the veterinary profession of the State, and nothing would be more conducive to that condition than an interlacing, as it were, of the State and County organizations through membership in both, and it is therefore that I urge every veterinarian present from Greater New York not already a member of the State Society to take advantage of this opportunity of becoming so; and, perhaps, it would not be out of place if I should take this occasion to add, also, for the benefit of those who have not already availed themselves of the advantage of membership in the County Association, that the monthly meetings at the Academy of Medicine will be resumed on the first Wednesday in October, and owing to the peculiarly favorable situation, surrounded as it is by the several boroughs of Greater New York, there is practically no limit to its possibilities and educational advantages with the increase in membership made possible by such surroundings. In conclusion, I would add that if we can but make you feel the welcome that we would extend to you in the same degree we mean it, and that we realized it during our sojourn among our northern neighbors in Buffalo in 1896 (last year I was out of it), our efforts will not have been in vain. Now, gentlemen, I feel sure we will not have completed the work laid out for to-day before the Committee of Arrangements will be around to advise us that the time for the recreation part of the programme has arrived, unless we cut our addresses short, so I will close my remarks with thanks for your kind indulgence."

On behalf of the members, Dr. James Law responded:

"DR. ELLIS AND GENTLEMEN OF THE NEW YORK COUNTY VETERINARY MEDICAL SOCIETY: It is my pleasing duty to accept, on behalf of the New York State Veterinary Medical Society, the welcome which has been so kindly and generously offered. I assure you, sir, that the pleasure in the reunion is mutual. Your welcome has been most generous. We could expect nothing less. It comes to us from the largest and most important county society in the State, a society which is not simply a county society, as it modestly assumes, but which, as representing Greater New York, may justly claim to be the metropolitan society of the continent. And yet our welcome comes not from strangers, but from friends, not from outside, but largely from within our own ranks, for much of the bone and sinew of our State Society are members of the New York County Society. This common interest and membership is as it should be. The statute which regulates the practice of veterinary medicine in the State tends to unite in one all legally qualified practitioners in the Commonwealth. They may hail from different schools in Europe or America, or Canada, Massachusetts, New York, Pennsylvania, Ohio, or any other State, yet the common sources of their license to practice binds them in one fraternal bond. This bond is their charter of rights, conferring upon them privileges which are not possessed by the graduates of their own respective alma maters who practise outside of the limits of the State. We feel, therefore, that our welcome comes from the ranks of our own State brotherhood, and that it is given and received in the true fraternal spirit. None the less, we take it as a handsome compliment and an earnest of the success of our assembly that the county society as an organization should thus offer us at the outset the hand of its friendship, the indorsement of its countenance, and its valued assistance in our deliberations. To the practitioners of Greater New York who are not members of the county society, but who have honored our meeting by the indorsement of their presence, we would also offer our thanks for their silent welcome, shown in act rather than in word, and we trust that they will carry the same generous spirit further and contribute freely to the success of our deliberations and discussions. The obligations resting on this State society in connection with the administration of the law which regulates the practice of veterinary medicine, and especially as

regards the duty of nominating candidates for the position of State veterinary examiners, affect every practitioner in the State, and furnish a strong argument why he should be an active member of the State society. The legal obligation is restricted to the State society, but the moral obligation presses equally upon us all, and just as the resident in a country who profits by the protection of its laws is under a sacred obligation to perform all the duties of the citizen, so the veterinarian practising in this State cannot rid himself of the sacred trust reposed in him under the terms of this State law. If it is the duty of the permanent resident to acquire and wisely exercise the rights of citizenship for the public good, so it is the duty of the veterinary practitioner to qualify himself to exercise his legal rights for the benefit of his profession and of the public at large. It is in view of such rights and duties that in accepting, on behalf of the society, of the very hearty welcome to this metropolitan city I wish to reciprocate by inviting all veterinarians of the State first to help to make the present meeting a success, and, second, to join the State society and help it to wisely perform those duties which are devolved upon it by the statutes."

After the reading of the minutes, President Baker made his annual address. This was followed by the Secretary's report and the reports of all committees. Nomination of candidates to fill the vacancy in the State Board of Veterinary Medical Examiners was then in order, and very promptly Dr. George Berns, of Brooklyn and Dr. W. L. Baker, of Cortland, N. Y., were unanimously elected and recommended to the Board of Regents. The report of the county secretaries followed and brought out some lively discussions, principally on tuberculosis.

On the evening of the 14th, at the invitation of the County Association, the members were given an illuminated trolley ride from the Brooklyn Bridge to Coney Island, where the Bowery was "done" in great shape, the members arriving home sometime about midnight. The next morning they very much enjoyed a drive through Central Park and back by the way of Riverside Drive.

The next in order was the reading of the papers, and with the exception of the one on "The Horse's Mouth," by Dr. F. C. Grenside, were read as per programme. After the President had announced the committees and essayists for the next regular meeting, the selection of the next annual meeting-place terminated in Ithaca, Binghamton, Syracuse, and New York being voted for, and after considerable debate the members were obliged to go to the Secretary's desk and deposit their ballots with the teller, the result being in favor of Ithaca, with the understanding, however, that if the United States Veterinary Medical Association should meet in New York the meeting shall be in conjunction with the same. The Committee on Resolutions then presented several resolutions, including one on the death of our late member, Dr. Thomas Giffen, after which one of the most successful, best arranged and attended meetings adjourned.

Notes taken at the Annual Meeting of the New York State Veterinary Medical Society.

THE New York State Veterinary College was well represented. Seven of the eleven papers read were by teachers from that school, and three of the papers were rendered more interesting by the exhibition of charts. Dr. Williams exhibited a very rare and valuable specimen of odontoma.

"The New Treatment for Milk-fever" turned out to be a somewhat im-

perfect translation from an article in a foreign journal, and a rather defective application of the same to four cows. It struck some that when a title is given as above one would expect something originating with the writer, and not a few were surprised when they found out it was a copy, and one member, Dr. Williams, was obliged to correct some errors, probably due to faulty translation.

Dr. L. McLean, of Brooklyn, entered into nearly all discussions with his usual aggressiveness.

During a discussion on osteoporosis some remarks made by Dr. Williams brought forth a query from Dr. Bell: "Do you (Williams) believe that there is such a disease as rheumatism in horses?" Answer: "All of the cases that I call rheumatism turn out to be something else, and one particular case I diagnosed as rheumatic developed into a very acute case of glanders."

Mrs. Baker accompanied Dr. Baker, of Cortland, and enjoyed a ride through Central Park.

It was gleaned from more than one source, and from those who ought to know, that Cornell contemplates establishing a veterinary department in New York City.

Many were very much surprised when Dr. Baker, President, recommended and distributed during the meeting samples and circulars of an antiseptic preparation called "antiseptin."

VETERINARY MEDICAL ASSOCIATION OF NEW YORK-COUNTY.

THE regular monthly meeting was called to order at 8.45 P.M., Wednesday, October 5th, in Room 37, New York Academy of Medicine, by President Robertson. The roll-call met with few responses, owing to the very uncertain condition of the weather in the evening, and many members having been exposed to the same condition of the elements during the afternoon. The following, however, were present: Drs. Robertson, Gill, Hanson, MacKellar, and Ellis.

The minutes of the June meeting were called for by the President, and were read and approved. There were no committee reports ready, so the President passed to the next order of business, and called for papers. No essayist having been appointed for this meeting, President Robertson took the initiative in "case reports" by describing a very interesting case of "Keraphylocele" with which he had been dealing. A very interesting discussion followed and finally drifted into a general discussion on several topics.

Under the head of new business, the question of the U. S. V. M. A. coming to this city was brought up, but President Robertson thought it better to delay its discussion until a fuller meeting.

At 10 P.M. it was regularly moved and seconded that the meeting adjourn, which was carried by vote.

ROBERT W. ELLIS, D.V.S.,
Secretary.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

A MEETING of this Association was held in Wilmington, July 30, 1898. The President, C. R. Ellis, delivered a very interesting address, urging the

members to aid in having our bill on proper sanitary regulations passed at our next Legislature. A petition was presented to the Association by the Secretary, with the signatures of all the best M.D.'s in North Carolina, asking our next Legislature to enforce strict inspection of animal foods, and we feel sure of winning with such coöperation.

Drs. W. H. Morris, Elizabeth City; H. G. Lambert, Asheville; and J. M. Peden, Winston, were elected members and certificates presented.

A vote of thanks was given the Hibernian Benevolent Society for their hall. Adjourned to meet in December. Place to be decided by the Secretary.

J. W. PETTY, D.V.S.,
Secretary and Treasurer.

SEMI-ANNUAL MEETING OF THE PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

It was a happy choice when, in the closing hours of business on March 9th last, the Association yielded to the earnest invitation of members from the western part of the State and decided to hold its semi-annual session in Pittsburg.

No other city in this Commonwealth excepting, perhaps, the "Quaker City," would be so well calculated to interest and amuse the expectant visitor as Pittsburg. Therefore, when the local committee of arrangements announced that a "trolley-ride" had been planned for the guests there was, in the moment, no thought of the meeting; but with thorough abandonment each member and visitor gave himself to the pleasure of the hour. And what can afford more happiness than the greeting of old professional friends? Another year had rolled around in the life-experience of those who gathered at Franklin. Its pleasant memories were still there; but here was another occasion, and the fraternal spirit was intensified. We cannot forget. Like the trysting times in the life of youth are these meetings with those whose lives have but a single aim and object.

But we must not fail to note the progress of the trolley-car. For miles, on either side of densely-shaded avenues, were elegant residences. Here, within a radius of twenty-five miles, are a million people. While a successful agricultural interest makes a prosperous country, so a manufacturing centre makes a prosperous city, and the smoke of her factory fires that hang in dense clouds everywhere is the secret of her greatness. Here was Schenley Park, containing the splendid library, the munificent gift of Andrew Carnegie. Nothing more worthy can any human being bestow than that which will contribute to the intellectual growth and character of a community. Such a gift gains in the lapse of years, cannot be excelled, and no one can say where its good influence will end. Here flows the deep, serene, majestic Allegheny. On either bank a great city, which on first entrance one might easily mistake for another Gotham.

It was in such a city, with so many magnificent parts, that the semi-annual session, 1898, of the State Veterinary Medical Association was held.

The morning having been exhausted in sightseeing, it was decided to have luncheon before opening the session. This was served in the dining-hall of the building, and was a spread from which if any man retired hungry it was his own fault or his incapacity to eat or enjoy good things. If there was any lack, it was in the guests not being able to demonstrate their

ability to even make a perceptible opening in the abundance that had been provided by the local committee to satisfy the inner man. No doubt this committee had themselves travelled and knew the peculiar wants and feelings of an itinerant. To say the least, the luncheon was a grand success.

At exactly 1.15 P.M. the meeting was called to order by the outgoing President, Dr. James B. Rayner. With fitting remarks, Dr. Rayner introduced his successor, Dr. George B. Jobson, of Franklin, Pa., who promptly took the chair and opened the business of the meeting.

Roll-call by the Recording Secretary developed the presence of the following regular members: E. E. Bittles, Henry Bowers, Harry Emery, Jacob Helmer, F. F. Hoffman, W. Horace Hoskins, J. B. Irons, George B. Jobson, J. S. Laycock, George Magee, J. C. McNeil, Otto G. Noack, Leonard Pearson, E. C. Porter, James B. Rayner, N. Rectenwald, W. L. Rhoads, A. F. Schreiber, William G. Shaw, James A. Waugh, A. W. Wier.

Visitors present were: E. S. Bayard, representing the *Stockman and Farmer*, Pittsburg, Pa.; Dr. David Martin, McKeesport, Pa.; Dr. Harry E. Dunn, Pittsburg, Pa.; Dr. P. K. Jones, Pittsburg, Pa.; H. A. Fugentbaum, Pittsburg, Pa.; Dr. H. D. Jackson, Sewickley, Pa.; Dr. G. B. Gilmore, Pittsburg, Pa.; Dr. Spohn, Carnegie, Pa.; Dr. A. W. Hinman, Braddock, Pa.; Mr. George W. Laycock, member of Council for Allegheny, Pa.; Dr. C. W. Boyd, Allegheny, Pa.; H. W. Mayer, Pittsburg, Pa.; Dr. W. Ratcliffe, Waynesburg; Dr. L. A. Reefer, Wheeling, Va.; W. Rubermahl, Pittsburg, Pa.; Mr. George L. Speil, Philadelphia, Pa.

The minutes of the previous meeting were ordered adopted as read.

Following the reading and approval of the minutes Dr. Jobson, the President, addressed the house as follows: "Gentlemen of the Association: Not having been present at your meeting in Philadelphia when I had the honor of being elected President of the Association, I take this opportunity to thank you for this token of your esteem, and also desire to express my appreciation of my friend Dr. Conard's courtesy in withdrawing his name as a nominee for that office in order to make the election unanimous. Your meeting in Philadelphia, I understand, was a very enjoyable one, as well as highly profitable to those who had the pleasure of being present. But I tell you, gentlemen, when I scan the roll of our members, I do not believe this Association could ever have a meeting which would be otherwise than enjoyable and profitable. This membership-roll also shows me that there are several counties and good-sized towns in this State still unrepresented in this Association, containing, I have no doubt, good material for the increase of our membership. And I would say to those veterinarians who neglect to avail themselves of the opportunity to become affiliated with this organization, that they make a mistake. There are advantages connected with this membership which a new member does not realize. You get acquainted with the best class of your fellow-practitioners, men of recognized ability in the profession; learn new and improved methods of operating and of treating diseases; hear discussed questions of vital interest, bearing on the advancement of the profession. And, let me tell you, whatever puts our profession on a higher plane helps the individual member, and last, but not least, the city member is brought into closer fellowship with his country brother (the men in the field), with mutual benefit to both. What we want is good, solid membership; enthusiastic, united, and willing at all times to work for the good of the profes-

sion. This is a progressive age. Is the advance in veterinary science commensurate with the advance in other scientific professions? The introduction of anæsthesia and the use of antiseptics in surgical operations marks a new epoch in human surgery, proving of incalculable value to suffering humanity: the one in rendering the patient unconscious during an operation, the other in reducing the death-rate from septicæmia. Although the majority of our profession fully appreciate the benefit to be derived from antiseptics, probably we do not fully realize the comfort and safety to the patient and operator in using anæsthesia during major operations while the former is secured in recumbent position. The introduction of local anæsthesia has proved a real boon to veterinarians, enabling quite a number of operations to be performed easily and safely which, in former days, it would have been impossible to perform without throwing the animal. Hypodermatic and intravenous injections of the active principles of drugs, in their quickness and efficiency in combating colics and other acute diseases, mark another era in veterinary progress. All these are evidences of progress. But the germ-theory of disease, or the discovery that those epizootics which spread with lightning-like rapidity over a large extent of territory, as well as other infectious diseases of slower but more insidious growth, are due exclusively to the invasion of the animal economy by specific bacteria in each particular disease, is without doubt the greatest discovery in veterinary science. Following on this discovery came the question of the possibility of transmitting some of these diseases to man through the consumption of the flesh or milk of diseased animals or by accidental inoculation, and the efforts made by the Bureau of Animal Industry and the various livestock sanitary boards to warn the public against these dangers, as well as to control the spread of infectious and contagious diseases among the livestock of their several States. Foremost among these institutions is the good work done by the board of our own State, of which our worthy fellow-member Dr. Pearson is the active member, and whose tact, ability, and scholarly attainments enable him so well to execute the duties of the responsible office of State Veterinarian. Gentlemen, I now close with the earnest wish that our Pittsburg meeting may prove, like its predecessors, thoroughly successful in every respect; successful in increase of membership, successful in new ideas advanced for the good of the profession, and a success in the good-fellowship engendered among those present as well as the pleasure we derive from this visit to our brother veterinarians of the Smoky City."

At the conclusion of the President's address, the Corresponding Secretary presented a list of the names of those who desired to enter the Association. This list was placed in the hands of the Board of Censors, Drs. Hoskins, McNeil, and James B. Rayner constituting said board. A brief recess was ordered to afford opportunity for the trustees to transact business; also that the Corresponding Secretary might collect the dues.

Dr. Rhoads read a letter from Dr. E. Sturge, of Scranton, in which the latter presented his resignation, having entered upon the practice of human medicine.

Closing its session, the chairman of the Board of Trustees, Dr. James B. Rayner, announced their approval of the following applicants for membership: Dr. Charles Boyd, Allegheny, Pa.; Dr. J. Buckham, Beaver Falls, Pa.; Dr. George A. Dunn, Pittsburg, Pa.; Dr. Philip K. Jones, Pittsburg,

Pa.; Dr. H. S. Jackson, Sewickley, Pa.; Dr. David Martin, McKeesport, Pa.; Dr. W. A. Meredith, Corry, Pa.; Dr. B. C. McClintock, Titusville, Pa.; Dr. C. W. Ratcliffe, Waynesburg, Pa.; Dr. John J. Repp, Philadelphia, Pa. A motion to suspend the rules governing the election of new members was made by Dr. Hoskins, and the Secretary was instructed to cast a ballot in favor of the same. The application for membership of Dr. Laberge was laid over until the spring session. The resignation of Dr. E. Sturge was accepted, he being found in good standing and his dues paid. According to usual custom, the newly-elected members present were introduced to the Association.

The Corresponding Secretary rendered a brief verbal report, stating that the financial condition of the Association was excellent; that its membership was growing steadily, the last three meetings alone having added thirty new active members. Referring to the educational power and the social advantage of such a growing organization, he urged those who were not already members to add their names to the list.

County Secretaries' Reports: Dr. Harry Emery, of Wilkinsburg, Pa., in his capacity as County Secretary, had communicated with the profession in his county, and while no promises of papers were given, an interest was manifested such as bode good for the reputation of the county at the meeting in Pittsburg. Dr. M. J. Collins, of Myerstown, Pa., reported for Lebanon County that there was a great deal of tuberculosis in that section of the State; also a disease exists in the northern part of the county among poultry, characterized by protrusion of the eyeball, swelling of the head, and a discharge from the mouth. Some of the eyes rupture; others, that otherwise recover, are left blind. Azoturia is reported as prevalent.

The President stated that letters of regret had been received from Drs. C. C. McLean, of Meadville, and R. A. Dunn, of Titusville.

Reports of Committees: At this time Dr. Leonard Pearson gave his hearers a pleasant and interesting verbal sketch of his recent visit to Europe,¹ attending the fourth session of the Congress for the Study of Human and Animal Tuberculosis, held in Paris from July 27th to August 2d.

At the conclusion of Dr. Pearson's talk, there being no new business or any unfinished business, the essays and papers were called.

Dr. F. F. Hoffman read a short but practical and valuable paper on "Cæsarean Section in the Cow." Dr. E. C. Porter was listened to with interest on "Parturient Apoplexy." Dr. Helmer read Dr. J. C. Michener's essay on "Prognostication," also Dr. Phillips' report. Dr. James A. Waugh presented "Dislocation of Metatarsal and Cuneiform Joints." Dr. E. E. Bittles, "Eserine." Dr. S. J. J. Harger not being present, his paper, entitled "Auto-intoxication in Carnivora," was read by Dr. Hoskins. The valuable point in Dr. Hoffman's paper was where and how to make the incision on entering the uterus. The essayist showed that it must never be made across the general direction of the bloodvessels, which would result in profuse hemorrhage and also laceration on removal of the fœtus. If the incision is made parallel with the vessels the bleeding is slight and laceration is largely averted. Dr. Hoffman's paper was discussed by Dr. James B. Rayner. Dr. Porter's by Dr. Irons, who related some novel ways in which cows had been cured of parturient apoplexy by

¹ The paper was published in full, p. 592 September JOURNAL.

methods that to-day are not considered scientific. This created considerable amusement among the members.

Dr. Pearson took advantage of the occasion to speak of the value of auto-intoxication theories to solve the problem of the cause of parturient apoplexy. The elaborate and ingenious theory of Frank, explaining the causes as mechanical, was popular for many years, until the Schmidt-Mulheim theory of auto-intoxication came upon the field. According to this view, toxic ptomains, absorbed from the uterus about the time of birth and subsequently, accumulate in the blood in sufficient quantity to produce irritation of the great nerve-centres, thus giving rise to the variety of symptoms and phases observed in parturient apoplexy. This has been a popular theory and has constantly won admirers, although the results of combating the malady by the treatment suggested was not as satisfactory as was hoped. But recently a Danish investigator by the name of Schmidt advanced the same principle, but differing in that the source of the absorbed poison is in the udder instead of the uterus. Old residue and new colostrum undergoing fermentation produce the toxic elements. Schmidt treats by washing out the udder with a solution of two drachms of iodide of potassium in a quart of sterilized lukewarm water. The apparatus necessary consists of a small glass funnel to which is attached a delicate rubber tube, on the extreme end of which is a silver-plated tube. The tube is inserted into one of the teats and one-half pint of the fluid is thus passed into the quarter, and is, by a gentle massage, diffused as far into the udder as possible. The other quarters are treated in a similar manner, and the operation is repeated in ten hours if necessary. It is advised to use adjunct treatment also, according to the symptoms met with in each case. The method is largely used and is popular in Denmark. In this country some favorable reports have been received, although its use here has been of short duration.

Dr. Rectenwald asked questions as to the application of this treatment, and cited two cases of apparent instances of the disease that developed before parturition. Dr. Rayner holds that of all diseases this one must be treated according to the rules of common sense and the requirements of the case; no procedure or remedy can always be depended upon.

Dr. Pearson called for Dr. Jobson to report his experience with a case treated successfully by the new method. Dr. Jobson said the case had been down ten hours when he arrived. It had grown gradually worse. He carefully applied the Schmidt treatment himself after having the udder stripped of milk. But, in addition, he had used a 1 per cent. solution of creolin as an injection into the uterus, since there was a large amount of mucus issuing from that organ. Internally he administered two pounds of Glauber-salts and an injection of one-half pint of crude oil in a gallon of warm water. The animal made a prompt recovery.

Dr. Bittles discussed the subject. Dr. Rhoads called upon Dr. Schrieber to give his experience with the new mode of treatment. Dr. Schrieber did not consider his a representative case and not a good one upon which to test the value of the new method. Dr. Waugh's paper was discussed by Dr. Rayner, Dr. Bittle's paper by Drs. Porter, Noack, Bowers, Rectenwald, and Irons.

Here Dr. Hoffman introduced the subject of anthrax. He employed

inoculation successfully, and had seen two cases of carbuncular anthrax in men. Dr. Jobson used vaccine, and considers it a preventive.

Dr. Hoskins returned to the report of the Committee on Legislation. Under this heading, he said the Board of Examiners had investigated some fifty cases in six months. These were settled by the removal of the offenders in some instances and abandonment of the work in others. Moral suasion had been highly successful in these. We have now on hand four or five hard cases which will test the validity of the present law. Three were those of false registration since the law of 1895. In two of these the Prothonotary struck out the registration. One will be contested. In this case the cause was the neglect of the offender to register in time. We are laboring under the disadvantage of a decision by Judge Schuyler to the effect that no law can establish a limit of time to those in legal practice in our own State.

Dr. Bowers: "I should like to ask whether a practitioner must receive compensation in order to be an offender."

Dr. Hoskins: "We have no legal decision on that point."

Dr. Bowers cited a case of a blacksmith treating a horse.

Dr. Hoskins: "I think it hard to convict blacksmiths who treat hoof troubles, especially if they use their own tools, confine themselves to the hoof, and when they do not charge more than for ordinary work. A mistake was made in the old law. The work of registration should have been done by a board appointed for that purpose, instead of by the prothonotaries. This has caused many illegal registrations. In the case of a board there would be no incentive except to register names legally. In one county men were advertised for who would register, and in sixty-eight cases only twelve were legal. In this case the fee had a glaring influence."

It was moved by Dr. Rayner, seconded by Dr. Waugh, that the discussion of Dr. Harger's paper be laid over until the annual session in Philadelphia; carried.

With appropriate remarks, Dr. Hoskins considered the work that had been so well and thoroughly done by the local committees for the care and comfort of the members, and moved that a vote of thanks be tendered to it by the Association for its hospitality; seconded by Dr. Rayner. This motion was unanimously carried.

On motion the meeting adjourned to meet in Philadelphia, March 7 and 8, 1899.

Thus ended the work of a pleasant and profitable session of the Association.

JACOB HELMER,
Recording Secretary.

GEORGE B. JOBSON,
President.

Hamburg, Germany, renders through its Board of Commerce an emphatic protest against the exclusion of American meat-products. Freedom from impurities, healthfulness, and cheaper price are reasons strongly urged why agrarian movements against these products should not prevail.

AMONG THE COLLEGES.

Every Western veterinary college reports brighter prospects and promised increased attendance of students.

Kansas City Veterinary College opened Wednesday, September 13, 1898, with a much larger class than for several years.

The McKillip Veterinary College of Chicago since the announcement was sent forth has provided for a very complete course of meat-inspection and preparation for government positions in the Bureau of Animal Industry. This course will be conducted by S. G. Burkholder, M D., V.S., connected with the Federal meat-inspection service at Chicago, and will embrace comparative anatomy, comparative physiology, comparative histology, gross and minute pathology, bacteriology, helminthology, antemortem inspection, postmortem inspection, and department regulations. Practical demonstrations at the Union Stock Yards.

The Western Veterinary College, of Kansas City, will open about October 1st, and expects a class of twenty students. The lectures will be given in an office room near Twelfth and Cherry Streets, rented for the purpose. Dissections will be conducted in conjunction with facilities afforded for clinical study in connection with the practice of Dr. J. H. Wattles, the promoter of the new institution.

The Ontario Veterinary College reopens its sessions of 1898-99 on Wednesday, October 12th. The catalogue for the ensuing year has just been issued, to which are added the names of the graduates of the class of 1898. The school has the largest list of graduates of any institution in North America.

A. V. M. A.

OFFICERS AND COMMITTEES, 1898-1899.

Officers: President, A. W. Clement, Baltimore, Md.; Vice-Presidents, Leonard Pearson, Philadelphia, Pa.; A. H. Baker; Chicago, Ill.; S. B. Nelson, Pullman, Washington; Secretary, S. Stewart, 7½ So. James St., Kansas City, Kansas; Treasurer, Wm. Herbert Lowe, Paterson, N. J.

Executive Committee: C. A. Cary, Chairman, Auburn, Ala.; D. E. Salmon, Washington, D. C.; J. F. Winchester, Lawrence, Mass.; W. Horace Hoskins, Philadelphia, Pa.; R. R. Bell, New York City, N. Y.; M. H. Reynolds, St. Anthony's Park, Minn.; A. T. Peters, Lincoln, Neb.

Finance Committee: C. C. Lyford, 821 Third Ave., S., Minneapolis, Minn.; J. R. Mitchell, Evansville, Ind.; Lemuel Pope, Portsmouth, N. H.

Committee on Publication: W. L. Williams, Ithaca, N. Y., R. R. Bell, New York City, N. Y.; Wm. Herbert Lowe, Paterson, N. J.; R. P. Lyman, Hartford, Conn.; S. Stewart, Kansas City, Kan.

Army Legislation: D. E. Salmon, Washington, D. C.; M. Stalker, Ames, Iowa; F. H. Mackie, Fair Hill, Md.; W. Horace Hoskins, Philadelphia, Pa.; J. P. Turner, 910 O St., N. W., Washington, D. C.

Committee on Resolutions: Leonard Pearson, Philadelphia, Pa.; James Law, Ithaca, N. Y.; T. E. White, Columbia, Mo.; J. C. Norton, Phoenix, Arizona; L. A. Merillat, Chicago, Ill.

Intelligence and Education: M. Stalker, Chairman, Ames, Iowa; James Law, Ithaca, N. Y.; F. H. Osgood, Boston, Mass.; Leonard Pearson, Philadelphia, Pa.; Joseph Hughes, Chicago, Ill.

Committee on Diseases: C. W. Heitzman, 1410 Thalia St., New Orleans, La.; Tait Butler, Starkville, Miss.; H. D. Gill, New York City, N. Y.; John M. Parker, Haverhill, Mass.; H. P. Eves, Wilmington, Del.

CLINICAL NOTES.

Dr. R. R. Bell recommends for gastric tympanites large and frequent doses of animal charcoal, two parts, and bicarbonate of soda, one part, in capsule form.

Dr. S. S. Whitbeck advises aloes made up in bolus form with turpentine, given per rectum, in most instances getting response in from four to six hours. Tincture of aconite in full-sized doses for fermentation.

Dr. W. L. Williams strongly urges the relief of caecal distention with the trochar and canula, and thus control gastric tympany and its disastrous sequences.

Dr. L. A. Merillat recommends strongly the use of eserine in

those cases of acute indigestion where flatus is present and slight elimination of the same is noted.

Dr. M. H. Reynolds urges the use of strychnine and atropine in moderate doses in connection with eserine.

Dr. W. C. Langdon, State Veterinarian of North Dakota, believes that he now has two horses cured of glanders by the continued use of injections of mallein.

CONTROL WORK.

Kentucky.—When the food contains poisonous ingredients, or when it contains antiseptics or preservatives not known to the purchaser; when it consists in whole or in part of diseased or putrid substances, or is in any part the product of a diseased animal, or an animal that has died otherwise than by slaughter, it is not to be offered for sale. The law went into effect June 30th, last.—*Abstract from Pure Food Law.*

California.—Inspectors of the Bureau of Animal Industry are authorized to grant special permits, in accordance with the instructions of the chief of that bureau, for the movement of cattle from the State to other States after the cattle have been inspected and found free from infection. This is on account of the severity of the drought in southern parts of California, where they are slaughtering cattle because of lack of feed and water.

Special order of the Bureau of Animal Industry: No vessels shall be permitted to take on board any cattle or sheep unless the same have been allowed at least twelve hours' actual rest in the yards at the port of embarkation before the vessel sails, nor until the loading of the other cargo has been completed.

PERSONALS.

S. G. Burkholder, M.D., V.S., is a new addition to the Faculty of the McKillip Veterinary College. He will instruct in the Department of Meat-inspection.

Dr. J. M. Wright, of McKillip Veterinary College, will address the Interstate Association of Sanitary Boards at Omaha, November 11th, on "Glanders and Its Suppression."

Dr. R. C. Moore, of the Kansas City Veterinary College, acted as veterinarian at the Kansas City Horse Show the latter part of September. All horses were examined prior to entry, and horses with marked unsoundness were rejected.

Dr. Edwin Hogg, of Kirkwood, Pa., has purchased an interest in the practice of Dr. Harry Walters, of Wilkesbarre, the same State.

Dr. S. W. McClure, graduate of the Veterinary Department of the University of Pennsylvania, class of '98, has located at Oxford, Pa.

Dr. Harry Walters, of Wilkesbarre, Pa., is planning an ocean voyage with the hope of obtaining a restoration of his impaired health.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, addressed the Jersey Cattle Breeders' Association at Lancaster early in September.

Dr. M. E. Conard, of West Grove, was an interested visitor at the Grangers' picnic held at Williams Grove late in August.

Dr. Solomon Bock, of Denver, has been confined to his bed for a number of weeks with an attack of locomotor ataxia, but is now convalescing.

Dr. Henry Bower, of the class of '97, University of Pennsylvania Veterinary Department, has already risen in fame through his trotting horse "Lawrence" winning the purse for the three-minute class at the races of the North Penn Driving Association of Philadelphia.

Dr. M. J. Treacy, of the Eighth Cavalry of the U. S. Army, who is on a furlough and visiting Indianapolis, gave prompt and forcible denial to the slanderous publication made by an Indiana Army Chaplain, appearing in the *Indianapolis Sentinel*, against Lieut.-Col. Rush S. Huidekoper, Chief Surgeon of the First Army Corps.

Dr. E. Bovett, of Denver, is veterinarian to the city troops of Denver, Colorado.

Dr. H. J. Detmers, of Columbus, Ohio, recently resigned his connection with the State Board of Veterinary Medical Examiners of the Buckeye State.

Dr. A. E. Cunningham, V.M.D., has opened an office for practice at 215 Huntington Street, Cleveland, Ohio.

A. N. Lushington, V.M.D., formerly of Belmear Institute, Rock Castle, Virginia, has opened an office in Lynchburg, Virginia.

Dr. E. H. Landes, of Camden, N. J., has been for some time connected with the army and stationed for duty at Tampa, Florida.

Dr. H. P. Monk has become associated as House Surgeon to the Paterson Veterinary Hospital and Assistant to Dr. Wm. Herbert Lowe, City Veterinarian of Paterson, N. J.

Dr. D. S. White, of the Veterinary Department of the Ohio State University, was recently appointed a member of the Ohio State Board of Veterinary Medical Examiners.

Dr. W. J. Martin, of Kankakee, Illinois, has lately made extensive additions to his infirmary. Among them is a new operating-room, in which has been installed a new operating-table of the latest design.

Drs. William Sheppard, Thomas G. Sherwood, and J. E. Ryder will officiate as veterinarians to the national horse show at Madison Square Garden, New York, in November next.

Dr. J. Stewart Lacock, of Allegheny, Pa., is the promoter of the Pittsburg Walker-Gordon Laboratory for the preparation and sale of "modified milk," to be prepared on physicians' prescriptions. A high-grade milk and cream will be prepared and sold. The company will employ the highest sanitary precautions; only tuberculin-tested cows and animals free from all other diseases will be allowed in the herd.

Dr. John J. Repp, of Philadelphia, an attaché of the Pennsylvania Livestock Sanitary Board, spent a week in September in the western and southern part of Pennsylvania.

Dr. F. H. Schneider, of Ashland, Pa., was a visitor to Philadelphia the latter part of September.

Dr. Maurice O'Connell, of Holyoke, Mass., has been reappointed by Governor Wolcott one of the Board of Cattle Commissioners of the "Bay State" for a period of three years.

Prof. Stiles, of the Bureau of Animal Industry, is doing good work in Germany for our livestock producers and exporters of food-products in clearing up the unjust imputations placed upon American pork.

Dr. B. M. Underhill, of Media, Pa., after a sojourn of nearly a month in Iowa and Nebraska, has returned to his practice.

Veterinarian George P. Statler, of Sioux City, Ia., is an expert polo-pony rider and player, and exhibited some very clever ponies at the Kansas City horse show.

Dr. R. Lindsey Tritton, of Richmond, Va., was recently a Gotham visitor. His son is attending the New York College of Veterinary Surgeons, having graduated from the Bethel Military Academy.

Dr. William H. Kelly, of Albany, N. Y., tarried for a number of days in Chicago on his return trip from Omaha, and enjoyed a visit to the Chicago Veterinary Colleges and association for a time with some of the "Windy City" veterinarians. Mrs. Kelly accompanied him as far as Chicago.

Dr. W. P. Phipps, of Lionville, Pa., spent some weeks in Iowa and Nebraska, where he found evidences of increasing prosperity on all sides.

Dr. Edward M. Ranck, of the H. K. Mulford Company Laboratories, was a visitor to Greater New York in October, visiting, among other places, the laboratories of the Health Bureau at the New York College of Veterinary Surgeons.

One of Colorado's prominent veterinarians is said to be the promoter and backer of a proprietary remedy company who are placing their "Every Man His Own Horse Doctor" cases throughout the State. He may be reached through Association channels under a breach of the code of ethics.

POINTS.

A yearling Shropshire ram, prize-winner at the royal show, recently sold for \$1650.

A gray draught-gelding, representing a cross between the Shire and Percheron, and weighing 2650 pounds, was recently sold in the Chicago stockyards for export to Liverpool. He brought \$350.

Birmingham, Alabama, through its Central Abattoir and meat-inspection has increased the consumption of meat and not advanced the cost to the consumer.

Officials of the Department of Agriculture are sanguine of the success of the proposed serum-treatment measures for dealing with

hog-cholera. The work and its results will be keenly watched by those whose losses have been so heavy from this scourge.

A Mexican burro at the Cheyenne Cañon and Seven Falls, Colorado Springs, Colorado, is said to have attained the age of fifty-five years ; it was toothless, and met death by a trolley car.

Colorado Springs, Colorado, finds employment for some six veterinarians. The work of City Veterinarian, formerly done by the late Dr. D. P. Frame, is now divided among several of the city's veterinarians.

Denver, Colorado finds employment for some sixteen veterinarians. The enhancing value of horses is adding to their increased employment and prosperity.

The Paris Municipal Council is now considering the advisability of building a special slaughter-house for horses, on account of the continual increase in the consumption of horse-flesh. The first horse-butcher shop was opened in 1866, and in the following year 2152 horses were consumed. Last year 14,840 horses, 275 donkeys, and 40 mules, making a total of 15,155 animals, weighing 2,743,000 kilos, were eaten by the Parisians.

After several Pittsburg and Allegheny veterinarians had been buncoed by alluring calls into the country and given up some of their hard-earned dollars to the steerer, they combined, laid a trap, caught the offender and jailed him for ninety days. A search of the prisoner brought forth a number of prominent veterinarians' visiting-cards in many cities, showing he was feeding on and seeking fresh pastures frequently.

Large numbers of cattle in Nebraska, Colorado, South Dakota, Texas, and Kansas have been vaccinated for black-leg this year, using the Pasteur vaccine for this purpose. Last year the losses in the districts where it was used was insignificant, the highest being 1 per cent. in a herd of 2400 cattle.

Letters patent have been granted to one of the makers of anti-toxins ; many of the others whose preparations are in the market are preparing to defend the same in open court. Surely our Government, through its Patent Office, does not want to place such a premium or restriction upon these remedies as to limit their use in the relief of suffering and the saving of lives.

The Illinois Board of Livestock Commissioners are asked to bear the cost of inspection of actinomycotic cattle at the Chicago stockyards, which is now borne by the commission merchants.



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THE ANTI-VIVISECTION AGITATION.

BY E. V. WILCOX, PH.D.,

PROFESSOR OF BIOLOGY, MONTANA STATE COLLEGE.

ANYONE who has taken the trouble to familiarize himself with the progress of scientific thought and investigation during the past two centuries can scarcely have failed to notice the persistent opposition which has been set up to every new method of research and every new triumph. The announcement of a scientific discovery has invariably been met with protests and cries of indignation from the strongholds of fanaticism. As is well known, the conflict has always been unequal and the victory on the side of science. But ignorance and prejudice "spring eternal" in the human mind, and as soon as one conflict is settled the war breaks out afresh in some other field. Scientific workers have had to accustom themselves to all sorts of opprobrious epithets until such men have come to expect, as punishment for having made any real contribution to the sum of human knowledge, the regular volley of abuse and curses.

In a country with such perfect freedom of speech as we enjoy in the United States, it is certainly an inalienable right of the, unfortunately, large number of people so disposed, to call other people by vile and offensive names. Indulgence in abusive language, however, is, after all, a quite harmless occupation for the class of persons who enjoy that sort of pastime. No scientific worker need feel in the least hurt at being called "wretch," "criminal," "fiend," "hell-fiend," etc., as is quite the fashion in a certain class of sensational literature which is being circulated broadcast over the country. To the average sensation-monger such words may sound very formidable. But these and other similar words

have been in the mouths and in the writings of the opponents of science from time immemorial, and the ordinary observer has a right to demand that these people use some new tactics in their invectives, for the sake of variety if for no other reason. Aside from all considerations of the etiquette of honorable controversy, we would humbly suggest the abandonment of this method of attack, for the simple reason that it has never had any effect except to make its users despicable in the sight of all well-behaved persons.

Vivisection is, perhaps, one of the latest scientific methods of research to be attacked by the enemy. In this country the attack has been carried on more or less assiduously for the past thirty years. The controversy has been an extremely unequal one, in so far as one side has been unceasingly talking and agitating, and the other side has only occasionally made any protest. Scientists, as a rule, have great faith in the ultimate reaction of common sense against the absurd misrepresentations of the anti-vivisectionists, and therefore seldom take the trouble of giving an explanation of the purpose of their work to people who persistently misinterpret these explanations. In the hundreds of controversies in geology, physics, chemistry, philology, anthropology, and biology the agitators against scientific investigations have simply been allowed to talk until finally they came to a realizing sense of the inanity of their own words. When will that day come for the vivisection question?

The anti-vivisectionists compare quite unfavorably with former anti-scientific agitators. Heretofore the enemies of science have taken the trouble to acquaint themselves after a fashion with the meaning of the scientific tendency which they opposed. No one can accuse the anti-vivisectionists of studying the questions which they so glibly discuss. As Prof. Hodge says: "In several hundred anti-vivisection publications I am unable to find a passage which reveals the least conception on the part of their writers of the real purpose which a physiologist has in his work." Not only do they not understand the purpose of the physiologist, but they even fail to distinguish between physiology and anatomy.

The Case of the Anti-vivisectionists.

We now proceed to examine the case of the anti-vivisectionists from some of their recent publications. We shall give quotations

¹ Popular Science Monthly, vol. xlix. p. 614.

from these writings which will illustrate their main characteristics, viz :

1. Dense ignorance of the meaning and bearings of the whole question.

2. Utter disregard of facts.

3. Intense pleasure in abusive language toward scientists.

4. Morbid delight in the sensational.

Anti-vivisection writings, as a rule, have the intellectual value and moral quality of a highly sensational newspaper account.

"The construction of human or animal bodies can be learned by books and dissections; and an authority no less than Dr. Michener, who ought to know, if anyone, declares that he has found the students who obtained their knowledge in this legitimate way quite as expert as those who resorted to degrading and revolting cruelty."

Quite true ; but no one dissects living animals in order to learn the "construction" of the body. Experiments are conducted upon living animals to learn something of their physiology, not of their anatomy. The sentence above quoted asserts, also, by implication, a distinct falsehood, viz.: That the vivisector actually does dissect living animals for the purpose of learning their anatomy. The one sentence is, therefore, a good index of the ignorance of the author on the subject of vivisection and of her rhetorical trickery.

Anti-vivisectionists set great store by the quotations which they are able to offer from the physicians and surgeons who are opposed to vivisection. Now, physiology is a recent science as compared with anatomy, and it is a well-known fact that there are many medical men who still seem to think there is really no such science as physiology, and that all we know about medicine comes from the dissection of dead human bodies and from "experiments on human patients." It is, perhaps, needless to say that the opinions of such men in physiological experiments are utterly valueless. We are told that "indeed, no discussion regarding this momentous question can be conclusive which does not accord place to the opinions thus deliberately formed by the eminent authorities whom we are privileged to quote."

Dr. Charles Bell Taylor is then quoted as saying that "the anæsthetic properties of ether and chloroform were discovered by experiments upon human patients, not by vivisection of animals." Unfortunately for Dr. Taylor, this does not involve a matter of opinion, but a question of fact, and the facts are against the

gentleman. The facts are that animals were anæsthetized and operated upon in that condition before anæsthetics were used on man. It would repay the gentleman to look up the records of the Massachusetts General Hospital on this point.

In regard to the discovery of the circulation of the blood, "the foremost abdominal surgeon of England" is quoted as follows: "And it seems to me, as a skilled anatomist, that the circulation of the blood could not be either discovered or demonstrated by any other method than the use of the injecting syringe, the microscope, and the dead body."

Such nonsense is almost beneath criticism. If the learned professor could demonstrate the circulation of the blood in a dead body he would thereby demonstrate that the "dead body" was alive. How in the name of common sense could we "discover" the circulation of the blood by forcing an injecting mass through the bloodvessels? All that this witness or any other person could demonstrate in the dead body is the presence of tubes. These tubes, the arteries and veins, were known and described long before the circulation of the blood was discovered. But that knowledge never helped us to a discovery of the movement of the blood.

Many other equally false and nonsensical statements are quoted from this man who, the anti-vivisectionists say, is "the foremost abdominal surgeon in England." For example, this great surgeon is quoted as saying:

"As regards the discovery of the circulation of the blood by Harvey, my answer to the question whether he made any substantial contribution to his success by his experiments on living animals is obtained from his own writings, and I say that he made no such contribution." What are we to judge from such a statement? Has the professor not read the works of Harvey? Or is it simply a prejudiced misstatement? Perhaps it will help to decide this matter if the reader is informed that the witness just quoted is a man who has repeatedly been shown to be utterly unreliable and untrustworthy in his testimony on this subject. Aside from his misrepresentations, his nauseating drivel on the subject of vivisection would be unworthy of notice if it were not continually thrown in our face by the anti-vivisectionists as medical science. Anyone who will merely take the trouble to read the titles of the chapters of Harvey's work, *De Motu Cordis et Sanguinis in Animalibus*, will find that Harvey depended upon vivisection at every step in his investigation.

In one of their circulars the anti-vivisectionists have quoted from Gordon as follows: "No sufficient analogies exist in the animal kingdom from which to draw useful conclusions." This quotation includes only a part of a sentence, a very important qualifying phrase being for some reason omitted. But even with the qualification added, the sentence shows such a profound ignorance of the progress of comparative anatomy that the witness certainly cannot pose as giving expert testimony on the subject. For a case like this there is only one effective remedy to prescribe, and that is to take a course in comparative surgery and comparative physiology.

We may be pardoned for adding on this point a quotation from a certain Dr. Blackwood: "Carried out as these brutal acts are on animals whose physiological construction and life-habits bear no possible relation to humankind, it is impossible that other than false doctrine should be the result of their cruel and degrading work." Here the phrase "physiological construction" is another example of the confusing of anatomy and physiology, a common mistake among the anti-vivisectionists. The essential physiological processes in all animals, from *amœba* to man, are the same. There are, of course, certain idiosyncrasies, but these scarcely differ more in individuals of different species than in those of the same species. For anyone to assert, as the last witness does, that these processes in the lower animals "bear no possible relationship to humankind" is simply to insult the intelligence of the average reader. Perhaps the witness knows of some animals in which the digestive functions are performed by the brain, and in which the kidneys *aërate* the blood. Or is the occult witness talking of astral animals?

We may add that it is only necessary to turn at random to any page of anti-vivisection literature to find everywhere therein overwhelming evidence of profound ignorance of the whole question at issue. But ignorance is by no means the greatest defect of the anti-vivisectionists.

Let us now pass to a consideration of another characteristic of their writings, namely, disregard of facts.

Concerning vivisection, a certain Dr. Foster says:

"It is contrary to the best methods of hygiene, sanitation, and dietetics and the proper study of therapeutics and *materia medica*."

Every unprejudiced historian of the development of these branches of medical science will at once protest that this a strange misrepresentation of the facts. The best and only scientific methods of hygiene, sanitation, and dietetics, in so far as they

have any reasonable foundation, are based entirely on results derived from vivisection. The anti-vivisectionists have adopted the rhetorical tricks of all charlatans, patent-medicine venders, and quack doctors. They deliberately distort the facts on the subject of vivisection and then raise a great hue and cry about the public being "hoodwinked" by the friends of science.

We quote again from an anti-vivisectionist circular :

Extract from Report Showing Existence of Abuses.

510 FIFTH STREET, N. W., WASHINGTON, D. C., April 15, 1896.

HON. J. H. GALLINGER, United States Senate:

It was my lot for a number of years to be engaged in the microscopical division of the Army Medical Museum, and I saw practised the most inhuman and barbarous mutilations of the dumb animals under the supervision and with the sanction of the United States officers in charge. A desired part or section of the animal would be removed, not under anæsthesia, and the poor beast would be then placed back in its cage or vessel until it suited the convenience of the operator to help himself to another portion, so long as the animal would survive these tortures. I have thus seen animals with eyes, section of brain, and other parts removed, and kept in reserve for future experiments for a number of days, and all for the verification and repetition of results obtained and published years ago.

"These unnecessary horrors, practised openly with the sanction of United States medical officers, make me think that stringent laws are needed to restrict such proceedings. None should be permitted not calculated to give additional useful information, and then under perfect anæsthesia and under the supervision of a board of competent men assigned to that duty.

"Very respectfully, your obedient servant,

"L. E. RAUTERBERG, M.D."

I have reproduced the letter of Dr. Rauterberg entire, so as not to appear to criticise him from fragments of his statement. This letter purports to be written as a protest against existing abuses, and contains the usual quantity of sensational matter. But when we come to inquire as to who this witness is and with what authority he speaks, we find that his testimony is not worth the paper on which it is written. As the present Secretary of Agriculture has shown in a circular published in May, 1897, we have here to deal with another case of misrepresentation. The only

statement of the whole letter which will stand criticism is that the witness "was engaged in the microscopical division of the Army Medical Museum." The records show, moreover, that Dr. Rauterberg was "engaged" in a clerical capacity, but that he has not been engaged in any capacity in that institution for the past twenty-three years. The witness, however, and the anti-vivisectionists who quote him, attempt to give the impression that his statement is an authoritative account of the "existence of abuses." Thus we get an idea of the trustworthiness of the witness. Perhaps the witness will be able to justify himself *à la* anti-vivisection mode for omitting dates, and thus foisting a mere rhetorical trick upon the public as serious argument. But we must set him another task. We would respectfully request him to substantiate the sensational portion of his letter. Secretary Wilson is authority for the statement that "responsible medical officers connected with the museum testify that there have been no painful experiments performed there since 1870, nor, so far as they are informed, previous to that time."

Thus we have in this witness a man who was never connected with the institution which he reviles, except in the position of a clerk, and that twenty-three years ago, who is quite irresponsible, but who has the audacity to give out false impressions by a vague statement and to allow his imagination to run riot while he abuses responsible officers of the institution.¹

We read in an anti-vivisectionist circular concerning vivisection that "there is nothing in the world about which more falsehood is told." This undoubtedly contains a truth which we are now in a position to appreciate.

We shall now examine a witness who is apparently one of the main pillars of the whole anti-vivisection movement. This man is Philip G. Peabody, A.M., M.D., LL.D., Boston, Mass., President of the New England Anti-vivisection Society, President of the National Constitutional Liberty League, President of the National Scientific Family Culture Institute, Vice-President of the Massachusetts Society for the Prevention of Cruelty to Animals, Vice-President of the Illinois Anti-vivisection Society. Dr. Peabody certainly has a keen scent for the sensational, and he is possessed of an ability in writing this sort of literature which would

¹ The anti-vivisectionists, in publishing Dr. Rauterberg's letter, have been careful to omit the first and most important sentence of the original. The omitted sentence reads as follows: "I have promised a lady, very much interested in the bill relating to vivisection now under consideration by your committee, to address you on the subject in a few brief words." Who is responsible for the absurd letter, the "lady" or Dr. Rauterberg?

admit him at once to the columns of the illustrated Sunday edition of a modern yellow newspaper. None of the witnesses heretofore examined have considered it necessary to take oath to the truthfulness of their statements. Dr. Peabody, however, seems to have had some slight misgivings as to the limits of human credulity. At any rate, he went before a justice of the peace in New Hampshire and swore that his account was true. This absurd proceeding in itself is enough to make one suspicious of the witness' story. And in the general affairs of life no one would believe a witness under oath who was not otherwise trustworthy.

Other anti-vivisectionists have had excellent success in working up sensational tales with regard to various American colleges and medical schools. But our present witness must go abroad for his sensational material. The masterpiece of this anti-vivisectionist was to be based on an alleged investigation of the methods of vivisection in the Imperial Veterinary School at Alfort, France. Dr. Peabody's methods of investigation are extremely interesting. To get evidence on the question as to whether or not anæsthetics were used he interrogated "the highly intelligent *attaché* whose express duty it is to show visitors about and give them information." The quotation is from Peabody's own statement under oath. The witness does not speak of meeting or of attempting to find any responsible officers of the school from whom to get reliable information; but, as if ashamed of the mission on which he was bent, he was content with bringing home "revelations" from a janitor. Unfortunately, there is in this country a large audience for exciting scandals. But no one can claim to have the best interests of the rising generation at heart who would deliberately set out to scrape together sensational matter on foreign soil, and publish it broadcast in our land to poison the minds of the youth. Anti-vivisectionists have much to answer for, and, perhaps, for nothing more serious than for the degrading and demoralizing influence of their literature.

We quote once more from Dr. Peabody: "I have for years past personally witnessed an immense amount of vivisection of all kinds from the least to the most terrible, and of many kinds of animals from the horse to the guinea-pig. I have never yet in all my experience seen any anæsthetics in, or about, or in use in any laboratory, with one exception. I have a personal acquaintance with many vivisectors, including a number of the best known ones in this country and Europe. I have hundreds of times conversed with them. No vivisector has claimed, or pretended, to use any

anæsthetic in conversation with me.¹ They have always freely admitted that they never used them."

Before criticising this statement we will quote for comparison the testimony of Prof. C. F. Hodge: "During over ten years' active experience in three laboratories in this country and a number of the leading laboratories abroad I have never had occasion to perform or witness an experiment of this painful class. Discovery of new anæsthetics and more recent methods of operation have doubtless reduced the pain of experimentation even below Yeo's estimate. In all laboratories in this country, and equally abroad, I have found anæsthetics adequately and uniformly employed."

Now let us compare these two statements. On the one side we have the testimony of a practical physiologist, an honest investigator, who has contributed to the progress of experimental physiology. Prof. Hodge is, moreover, a responsible gentleman with an official position and under obligation to know whereof he speaks. On the other side we find a mere collector of sensations, a man who visits laboratories for the purpose of adding to his collection, and who is possessed of the morbid desire of being shocked by imagined cruelties, so morbid, indeed, that he would feel disappointed if he should be convinced of the non-existence of his imagined horrors.

I was a student at Harvard College from 1891 to 1895, and am therefore somewhat acquainted with the work which was done at that institution during the years mentioned. I saw animals vivisected under the influence of anæsthetics. I never saw any vivisected without the use of anæsthetics. Numerous student friends in the Harvard Medical School told me that vivisection was never performed there without anæsthetics. Did Dr. Peabody ever visit Harvard Medical School? Again, in consequence of the sensational stories and malicious exaggerations of the anti-vivisectionists, a bill was presented to the Massachusetts Legislature asking to have persons appointed as inspectors of vivisectional experiments. This happened in 1896. In the winter of 1896 a similar bill was presented to the National Congress. Both these bills were, of course, defeated, not, as the anti-vivisectionists say, "by those who wished neither inspection nor restriction," but simply by the inability of the petitioners to present any case. As Prof. Hodge says for Massachusetts: "None of the petitioners for the bill were able to cite a single case or the reasonable suspicion of a case of

¹ We can only guess at the meaning of this sentence. It seems to mean that the vivisectioners actually endured Dr. Peabody's conversation without taking ether.

abuse of vivisection." The same thing was true of the bill in Congress. The only pretended instance of the abuse of the practice in the District of Columbia was the aforementioned imbecile letter of a man who had been a clerk in the Army Medical Museum twenty-three years ago.

Now, will Dr. Peabody please enlighten us as to what he was doing during these legislative discussions of vivisection? Here was an excellent opportunity to meet vivisectionists who habitually use anæsthetics. Not only were the anti-vivisectionists unable to find a case where anæsthetics were not used, but the vivisectionists offered abundant proof that anæsthetics are continually used in their experiments. The testimony of Prof. Hodge, moreover, is a flat contradiction of Dr. Peabody's statement in every particular. Prof. Hodge's testimony is based on an incomparably more intimate and extensive knowledge of the subject than is that of Dr. Peabody. These facts, therefore, brand Dr. Peabody's account as insincere, and present to him the following dilemma: Either his statements are misrepresentations, or he has made no honest effort to get the facts of the case.

(To be continued.)

SLAUGHTER-HOUSE INSPECTION.¹

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THE establishment of slaughter-house inspection by the government at the large slaughtering-establishments doing a foreign and interstate business has served to attract attention to the necessity for careful inspection at all slaughter-houses supplying cities and towns with animal food-products.

In order that slaughter-house inspection may be all that public health requires that it should be several conditions must be harmoniously conjoined: There must be legal authority to conduct inspection and enable the inspector to enforce necessary regulations; there must be a substantial moral support on the part of the public, both general and official; the inspector must be thoroughly competent.

If inspection be established under the authority of a local or State board of health, the power for enforcement of its rules is

¹ Presented before the United States Veterinary Medical Association, Omaha, Nebraska, September, 1898.

usually ample and easily applied. When the authority for inspection is through municipal ordinance political influence is a forceful factor, often rendering uncertain the official position of the inspector, and not infrequently determining a vacillating and biased service, with laxness where financial or political force is applied.

If inspection be intelligently and honestly conducted, and the public kept informed as to the work done through official reports, public sentiment will lend strong moral support to this kind of sanitary service. No one thing will create a stronger public approval and more general satisfaction than the assurance that the food upon the table is not tainted with disease.

The qualifications of the inspector for the duties of his office are important factors in the establishment and maintenance of a service which fully protects the public and yet does justice to the owners of animals slaughtered. He should possess a thorough knowledge of the anatomy of domestic animals and have a good working knowledge of comparative pathology. He should be familiar with the antemortem symptoms and postmortem lesions of the more common diseases, and possess the mental acumen to trace out and determine the rarer ones, and withal to judge early the influence any disease or morbid condition may have on the wholesomeness, as human food, of the flesh of an affected animal. He must be honest, courteous, and discreet. Inspection may be carried on without serious conflict with the slaughterer if the inspector condemns with discretion, and has the tact to explain, in simple language, why he condemns when objection is raised by the butcher or owner. In this way he may be led to have confidence in the inspector, and will manfully bear his losses when unfit carcasses or organs are condemned as unfit for food and destroyed.

The carcasses of animals affected with anthrax, rabies, and septic conditions may be classed as positively dangerous, both for food and to handle; those affected with tuberculosis, actinomycosis, Texas fever, erysipelas, sheep-pox, hog-cholera, and swine-plague, or any disease producing elevation of temperature, as dangerous and suspiciously unwholesome; also beasts which have died before slaughter, or must be killed to save them, and flesh saturated with œdematous fluid and blood.

There is a class of meats which is decidedly disgusting and loathsome, though not positively harmful as food, such as the flesh of animals which were drowned, smothered, or died of apoplexy ;

females in the parturient state, or near its approach; unborn or recently-born young; animals fed on loathsome offal; flesh which emits an unpleasant odor; and flesh containing parasites, such as trichinæ and cysticerci, the last two being harmful if consumed raw.

Flesh may be considered wholesome in cases of recent injury, localized diseases of single organs, of a chronic, non-malignant character, or localized parasitic invasion, the parts involved having been removed.

The interest of the owner of meats under inspection is to be considered in connection with the health and prejudice of the consuming public. You will observe that popular and personal prejudices play quite an important rôle in this connection. Persons not accustomed to seeing animals slaughtered and the parts or organs prepared for food are often disgusted with many conditions and products which are perfectly wholesome; and others, who do this work, or constantly see it done, become accustomed to and consider wholesome many conditions of flesh which may be decidedly harmful or loathsome to the general public. The public should be properly protected from the ignorance or rapacity of the butcher, and the owner and slaughterer of animals be protected from the ignorant prejudices of the public.

Examinations made before slaughter are highly important. Considerable enlargements of any of the tissues about the head, neck, and limbs are easily discernible; gangrenous wounds and skin-diseases will be noticed, and the sick or bruised animal which gets out to one side by itself, or lies down, while the others stand or walk about, will not be overlooked; also the class known as "downers," or cripples, which cannot or will not walk to the slaughter-house, may be seen. Special attention should be given to such animals during the postmortem inspection, for the wily butcher knows how to cut away evidences of disease skilfully while removing the skin, limbs, and head.

If the slaughtering-establishment be a small one, and the examiner has abundant time to watch the entire process of slaughter leisurely, no abnormal or diseased condition need escape his notice; but in large abattoirs, where 100, 200, or even 500 animals are slaughtered per hour, the process of dressing is done in parts, at several points along the journey of the carcass from the killing-bed to the refrigerator. The head, feet, and visceral organs are quickly removed to another part of the establishment, so the evidence of disease must be seen quickly, if at all, and the carcass of

which they were a part identified. Still greater acumen must be exercised in small abattoirs, where the carcass is dressed and the viscera set aside to be examined at the convenience of the inspector.

During the transportation of cattle by railroad to the markets many are injured. These injuries vary from a slight bruise to extensive contusions of the soft parts and fracture of the ribs, vertebræ, or bones of the extremities. Ten to thirty hours after infliction these injuries are manifest in the live animal by swelling and puffiness over the seat of contusions, and, if extensive, the animal moves about very stiffly, as though foundered. If the ribs are broken the injured side is protected as much as possible by muscular rigidity on that side. If a femur, ilium, or vertebra is fractured, the animal will be unable to rise, and must be hauled from the car or yards to the slaughter-house in a cart. Sometimes cattle get down in an overloaded car and cannot get up, owing to the crowded condition of the car. They are trampled on by the others and, after much struggling, become discouraged and will not get up; or, during a rainy or an icy period, cattle slip, violently separating the hind legs at right angles to the median line of the body, rupturing the muscles in the pubic region, perhaps fracturing or dislocating the femur or other bones. These animals are known as "downers."

When slaughtered, the cases of severe injury of more than twenty-four hours' standing do not bleed so freely nor so perfectly as a sound animal. When the skin is removed contusions recently inflicted are easily discerned, the subcutaneous connective tissue and fat being infiltrated with blood escaped from ruptured capillary vessels. If the contusions be extensive, as when a bullock gets down in a car and is repeatedly trampled upon, the fat and connective tissue of the back and sides of the body are torn and pulpified to such a degree that the skin is removed from the injured parts by very slight traction, and the surface of the body is discolored over large areas. The contusions may extend deeply into the muscular structures, even through the thoracic or abdominal walls, being accompanied by hemorrhage into the parts, pulpification of the muscle structures, and sometimes fracture of ribs.

If the injured animal be not slaughtered before febrile conditions are established, the injured tissues become infiltrated with an exudate, varying in color and consistence from a gelatinous amber-colored serum to a thin, dirty fluid, with sometimes a disagreeable odor. The expert butcher deftly removes the hemorrhage, stained, infiltrated, and torn fat and connective tissue overlying

the muscular structures, also the superficial muscles, if coagulated blood and serum be found in and beneath them; then with a brush and plenty of very hot water the smaller hemorrhagic discolorizations are softened and washed away, the parts presenting a nearly normal color when dried and placed in a refrigerator until thoroughly cooled.

When the injuries are recent, as indicated by the absence of the products of inflammation, the bruised and torn parts can be cut away, leaving the remainder of the carcass wholesome food and not offensive in appearance. In those cases where the serous exudate is extensive or malodorous, or where rigor mortis is established before the skin can be removed, changes have taken place in the fluid and solid tissues which render them suspiciously—if not certainly—dangerous for food, and they should be condemned.

The class mentioned as “downers” or cripples naturally require especial attention, yet when slaughtered and dressed it is often difficult to discern any sufficient reason why some would not or could not walk to the shambles, so slight are the tangible lesions. Many of them present lesions of the bones and contiguous soft parts, and the same principles apply in determining the wholesomeness of the flesh as though these animals walked to the slaughter-house.

Large suppurating wounds from punctures, gunshots, or branding-irons, or gangrenous wounds are sufficient cause for rejecting the bearers for food purposes. Such animals are usually in a declining physical condition, which fact makes it highly suspicious, if not certain, that the structures of the body are deleteriously influenced by poisonous elements carried from such wounds. If such wounds be small, and postmortem sections of the surrounding structures and contiguous glands show them to be normal in color and consistence, the removal of a liberal portion of the structure surrounding such wound should render the carcass unobjectionable.

Actinomycosis is the most prevalent disease of cattle in this section of the country, and in at least 80 per cent. of the cases in cattle offered for sale at the market the lesions of the malady are confined to the structures of the head and neck. Indeed, in most cases it is a local affection, in no way affecting the general system, excepting as it interferes with prehension, mastication, and deglutition of food. The majority of cases involve the inferior or superior maxillary bones. In all these cases coming under my notice one or more fistulous tracts were found discharging into the cavity of the mouth. These fistulæ are to be found before the disease has reached sufficient development to be observable by visual examina-

tion externally, and long before the overlying skin has become involved in any degree. A careful examination of the internal organs of many cattle having actinomycosis of the maxilla in the early stage, but with fistulæ opening into the mouth, has failed to reveal the involvement of any visceral organ. As stated before, the lesions of this disease are usually in the tissues about the head and neck. When the soft structures only are involved it usually begins in one or more of a chain of lymphatic nodes, extending from the mouth to the thorax, most frequently in the submaxillary region. The disease processes set up in these nodes destroy them, and in their stead is developed a dense, thick-walled sac of variable size, containing a whitish, odorless fluid or semifluid mass, which, it is claimed, "consists of detritis resembling pus, but lacking the specific micrococci which are always present in pus." The skin over these tumors may be involved and a fistula established, the external end of which is surrounded by a granular growth, which necroses on the surface, giving off a very offensive odor and having a disgusting appearance.

Extension to other parts is more frequent when the disease is glandular in character. In about 20 per cent. of cases the fungus invades the soft parts about the head and neck; many of these present actinomycotic growths in the lungs, and occasionally the liver and intestinal structures are invaded. The disease appears to extend along the lymphatic channels rather than to find dissemination through the general circulation. Out of several thousands of cases only two were reported as generalized, and careful inquiry showed no involvement of the muscular structures, but was confined to the head, neck, and glandular structures of the cavities; and I question if these cases were not pyæmia coincident with actinomycosis. Actinomycosis of the tongue is very rare.

When the bony structures are the parts invaded by the actinomyces, the characteristic proliferation of the osseous and perosseous tissues attain dimensions which give it the popular name of "big jaw." The fungus destroys the bone and its covering, supplanting them with a new growth of fibrous tissue, enclosing masses of granular tissue, in which are embedded small yellowish points of gritty, purulent fluid, the hard grains being clumps of the specific microorganism of actinomycosis. When the overlying skin is involved the surface presents one or more granuloma which surrounds fistulous openings. If these growths have not interfered with the general health of the animal, sentiment is the most tangible reason for condemning the carcass.

Tuberculosis is found in a small percentage of the cattle slaughtered in the valley of the Missouri, being found principally in cows over five years old, but is occasionally found in calves and young cattle. No structure of the body is entirely exempt from disease-processes set up by the tubercle bacilli, but there is a much greater tendency for these germs to establish themselves in the lungs, thoracic glands, and mesenteric glands, and then spread to other contiguous organs and tissues, or becoming generally disseminated throughout the body. These bacilli, by their active presence in a tissue, induce a new growth about them, which, if it be near or on the surface, projects or stands out like granules. These growths are called "tubercles." They are found scattered through the substance of glands and other structures, or on their surfaces. This form of development in the serous membranes constitutes what is known as the "pearl" disease. Tubercles are often agglomerated into masses from the size of a pea to an egg, and even attain the weight of ten pounds or more. Tubercles or masses when found on free surfaces have the appearance of granulation tissue, but when cut across the centres are found to consist of semi-solid, whitish, caseous material, and in chronic cases may contain small particles of lime-salts, giving this cheese-like substance a gritty feeling to the touch. Sometimes the necrosed tissue in the tuberculous glands of the neck and thorax and in large tubercular masses in the substance of the lungs and liver may be liquid or partly liquid.

It is a very difficult matter to detect the tuberculous animal when confined with others in slaughter-house yards, as there are no pathognomonic signs which plainly and certainly distinguish it from the non-tuberculous, unless it be in the cow bearing the tuberculous udder and contiguous lymphatic glands. By tactile examination any considerable development of tubercles in the lymphatic glands above and behind the udder, or in the udder itself, may be recognized by the nodular character of the induration present, the non-tubercular induration of this organ giving a more uniformly smooth surface to the touch.

Upon postmortem examination the observer will readily discover, when present, the granular appearing tubercular growths on the serous surface covering any viscus or lining the thoracic or peritoneal cavity. I know of no normal or pathological condition presenting a similar appearance. These growths are nearly always present either in the thoracic or peritoneal cavity in cases of generalized tuberculosis. The serous membranes lining the thorax and abdomen are easily torn out, and with them these tell-tale

evidences of generalized infection. Enlarged lymphatic glands and abnormalities in appearance of the visceral organs will attract attention, by section of which the character of the disorder may be determined. It is differentiated from actinomycosis by the small yellowish points and the actinomyces grains of the latter disease, and from parasitic and other abscesses by the character of contents and the presence or absence of like lesions elsewhere, and if necessary, by aid of the microscope. In ordinary postmortem examinations in slaughtering establishments the inspector should have time to examine the entire carcass minutely in cases in which the gross lesions are confined to a single organ or gland; even then he cannot always discern whether generalized tuberculosis is in process of development from the localized form. Color, odor, texture, fatness or leanness give no hint to such extension of this disease. I have seen very fat carcasses which were actually studded with tubercles all over the external and internal surfaces, as well as being profusely interspersed throughout the muscular tissues. Of course, many cases are emaciated. Localized tuberculosis, whether it be in lymphatic or mammary gland, in lung or liver, does not apparently modify the physical appearance of the carcass.

There seems to be a great diversity of opinion as to the wholesomeness or unwholesomeness of the flesh of tuberculous cattle, even in Europe, where several international congresses have debated the subject at great length. The consensus of opinion seems to be that in all cases of generalized tuberculosis the carcass should be condemned, and when localized the flesh may be safely used for food.

The disease known as "Texas fever," or "Southern fever," may be recognized in living animals which have been driven to the abattoirs for slaughter, if they are allowed to become quiet, for as soon as the excitement of the drive is past a sick animal assumes a characteristic position. The back is arched, the limbs are spread apart to enable it to stand steadily, the head is dropped low, the ears fall downward and forward, or the animal may lie down, when the head is carried around to the flank, as in parturient apoplexy. If a thermometer be employed, it is usually found that the rectal temperature is from 103° to 106° F. Should the animal void urine, the dark wine-color will be very noticeable, and when the sick animal is made to walk, after a period of rest, a staggering gait will attract attention. If it be docile, an examination of the visible mucous membranes may be made, but in range cattle the prudent inspector will dispense with the informa-

tion to be so acquired, for animals sick with Texas fever are more excitable and vicious than healthy cattle. The presence of ticks on the escutcheon, thighs, flanks, and elsewhere confirm the diagnosis.

When an animal sick with Texas fever is slaughtered the examiner will find the spleen greatly enlarged, its capsule easily torn, and the substance of the gland quite black and very soft, sometimes partly liquid, so that considerable of the splenic mass will gravitate to either end of the capsule if suspended by the other end. The liver is much enlarged and changed from a brownish to a mahogany color, also somewhat mottled on cut surfaces due to being irregularly stained with coloring matter from the blood. The gall-bladder is distended with a very dark, tarry, viscid bile, in which is suspended a quantity of yellow flakes which will deposit upon standing. The urine in the bladder has a dark-red to port-wine color, and the kidneys will be found congested. Other visceral organs present no characteristic lesions. In some carcasses the tissues have a yellowish tinge and the fat a bright lemon-yellow shade. In other carcasses the color of the flesh is normal, but the cancellous structure of the bones is stained dark like the urine.

The foregoing presents the principal antemortem symptoms and postmortem lesions of the acute disease fully developed. In this type of cases an inspector would not be in doubt as to whether or not an animal is diseased, nor as to what disease it is; neither would he hesitate concerning its condemnation. In the same bunch of cattle in which this typical case is found there will probably be others in which this malady is just beginning to develop or is partly developed. The structural changes in the spleen and liver are not so marked, perhaps scarcely discernible. The disintegration of blood-corpuscles may not be sufficient to stain the urine highly; or the case may be of a very mild type. It will tax the judgment of an inspector to determine rightly whether or not the animal is infected; whether or not the disease is sufficiently developed to render the flesh unwholesome, this disease not being communicable to man.

Advanced pregnancy and the parturient state, though normal conditions, should reject the cow for slaughter. Sentiment renders the flesh of such unappetizing, as well as the flesh of the unborn and recently born calf. Local regulations usually require the calf to be four to six weeks old or to weigh at least seventy-five pounds when dressed.

Extreme emaciation from any cause so modifies the tissues that the carcass does not become firm and dry in the refrigerator, like normal flesh, and accordingly is very deficient in nutritive quality, and should be rejected.

Leucocythæmia, or leukæmia, is occasionally found on the slaughter-beds. Enlargements of the lymphatic glands and spleen are the abnormalities which attract the attention of the inspector. In the several cases coming under my notice the animals were in thin flesh, presenting the appearance of general unthriftiness. The spleen was many times the normal size, and lymphatic glands in all parts of the body were from two to ten times the usual diameters; cross-sections presented normal appearance.

Non-specific inflammation of every viscus is occasionally found, and the disposition of the carcass must be determined by the stage of development and extent and character of perverted functional activity. It is conceded that high bodily temperature, long continued, impairs the quality and character of flesh, rendering it unappetizing, noisome, and suspiciously unwholesome.

Acute inflammation, as well as chronic structural changes of the kidneys, are quite apt to escape notice, owing to these organs being embedded in considerable fat. Any considerable interference with the renal function soon leaves the tissues charged with waste-products, which prevent the usual firming of the flesh, it remaining soft and sticky or clammy to the touch, and gives out a loathsome, urinous odor. Such flesh should be condemned.

Cold abscesses may be found in all parts of the animal carcass, but are most frequently found attached to a thoracic or abdominal viscus. There is very rarely more than one in any individual, and they vary greatly in size. They are most frequently found in young, highly-developed, and rapidly-fattened cattle which present every appearance of perfect healthfulness. They consist of a very dense limiting membrane inclosing a whitish, odorless purulent fluid which is rather gruesome to look upon. There is no morbid disturbance in the structures contiguous to these abscesses, and they can be enucleated, leaving the carcass wholesome food.

An occasional case of pyæmia, or multiple abscess, throughout the body is met with. Investigation usually reveals the source of infection in a suppurating wound or purulent inflammation of the uterus or serous membrane; these and cases of septic infection from a retained foetus or placenta, or from a gangrenous organ or wound, will call for condemnation. The carcass in such cases

gives out an offensive odor and does not dry and harden when placed in the cooler.

Genuine jaundice is seldom seen, and when found indicates condensation. A pseudo-jaundice is very abundant and is due to the peculiar coloring of fatty tissues. I have noticed that the fat of animals which are in a thriving and improving condition is yellowish white, and the fat of those in a retrograding condition is more highly colored, even acquiring a dark-orange yellow color, giving the carcass a jaundiced appearance.

Some Southern cattle are infected with flukes. These parasites may be sufficiently numerous to channel the liver in all portions and stimulate new growth of tissue-elements sufficiently to double or quadruple its normal size, yet the appearance of the carcass is normal and appetizing. The liver alone is rendered objectionable.

The *cysticercus bovis* is very rarely found in cattle coming from the region west of the Mississippi River. The cysts are usually most numerous in the muscles of the cheek; they are about the size of a navy bean, and consist of a cyst wall inclosing a small tapeworm head and a quantity of limpid transparent fluid. The presence of this parasite (one source of tapeworm in man) indicates condemnation.

Sheep which come to the Western markets are less subject to disease than cattle and hogs. The most frequent cause for condemnation is emaciation. Some of the sheep from Mexico, New Mexico, and Colorado are infested with tapeworms, which are so numerous in the small intestines and bile-ducts that the nutritive functions are greatly interfered with. There is no fat and little muscle on the carcass, and that little is so devoid of the normal constituents that it remains soft and flabby under the same conditions in which the carcasses of healthy, well-nourished animals become dry and firm.

Jaundice is quite common, and is dependent upon pathological derangement of the liver, usually inflammation of that organ, but occasionally atrophy or sclerosis of the hepatic tissues is the cause. Some cases of jaundice found in sheep shipped from Western ranges are probably cases of ictero-hæmaturia; the spleen is large, the liver black and friable, bladder full of high-colored urine, the skin and other tissues stained intensely yellow.

A disease somewhat resembling tuberculosis is found in sheep grazed on the plains of Colorado and Utah. It is characterized by the development of caseous masses in the lungs and thoracic glands, the glandular masses often becoming two to three inches

in diameter, and even greater. I do not remember to have seen the extension of this disease to any tissue or organ outside the thoracic cavity. The disease is essentially chronic and apparently does not interfere with the thriftiness of the animal until large areas of the lungs are invaded and destroyed. When the health of the animal has been impaired by this disease it would seem self-evident that the carcass should not be used as food. In all cases the organs invaded should be destroyed.

Another disease somewhat resembling tuberculosis is found in the walls of the intestines and in the mesenteric glands. It consists of nodules of various sizes, made up of adventitious tissue inclosing caseous pus, and sometimes there is found in addition to it small round-worms. This is known as the nodular disease, and its only apparent effect is the rendering of the intestines valueless as sausage casings. In these cases, as well as in all wounds, abscesses, septic conditions, advanced pregnancy, etc., the same rules for condemnation apply as in cattle.

Many sheep are the bearers of the cystic *tænia marginata*, which are mostly found attached to the folds of the peritoneum; as they are harmless to man the carcass is wholesome food, but butchers should be required to remove all cysts and put them into the furnace or retort (in order that they may not be thrown to dogs, in whose intestines they become mature tapeworms).

A few cases of scab have come under my notice, in which inflammatory processes extended beneath the skin. The animals were anæmic and apparently subjects of septic poison. These cases were condemned.

Swine are subject to bruise and fracture during transportation, also to many diseases identical with those of cattle, and the same principles apply in determining the wholesomeness of the flesh for food. There are some special diseases of swine, of which hog-cholera and swine-plague are the most important. These two diseases are frequently associated in the same animal, and bacteriological culture-tests are often necessary to determine which it is, if both diseases are not present.

It is the common custom of stock-owners to ship their herds to market when contagious diseases develop in them, regardless of their fitness or fatness, and sell them for what they will bring, in order to avoid a greater financial loss. More especially is this the case when the animals are swine affected with cholera. In the stage of invasion, or in mild cases, none of the physical signs are sufficiently marked to indicate the diseased hog when driven into

the slaughter-pen, but in the more advanced stages of ordinary virulence the sick hog lags behind, has a staggering gait, may cough violently, and is so exhausted by a short drive that a spasmodic action of the diaphragm (commonly called thumps) is present in many cases. When allowed to stop the snout is dropped to the ground, the back arched, the abdomen tucked up, and vomiting, purging or both occur if the animal has access to water, which follows its endeavor to quench an insatiable thirst. Red discolorations of the skin are usually present in various parts, the ears are frequently swollen to two or three times the normal size, and thickness and occasionally necroses of the skin and subcutaneous tissues occur upon the ears and other parts which have been bruised. When slaughtered and the hair and cuticular layer of the skin are removed in the usual process of preparing the carcass for food, the hemorrhagic discolorations of the skin which are present in nearly all cases of cholera will attract the inspector's attention. This discoloration varies from a bright-red color in recent cases to a dark-gray pigmentation in convalescing cases. They may vary in size from small lenticular spots on the legs, jowl, and neck to blotches several inches in diameter situated on any part of the body.

Strokes of the whip or other light contusions of the skin will produce light-red marks in healthy hogs, but in cases of cholera the color is dark-red and extends a considerable distance from the injury.

Hemorrhages also occur into the subcutaneous fat from very slight contusions and show as dark spots under the skin. In cases of several days' standing these hemorrhagic areas often necrose, and an incision through the skin reveals a quantity of dirty, brown, putrid fluid. The overlying skin will slough if the animal lives long enough. The lymphatic glands in all parts of the body present hemorrhagic lesions, which vary from redness of the periphery to a dark, bloody discoloration of the entire glandular mass. Extravasations of blood beneath the serous membranes are often quite extensive, especially in the lungs, mesenteric folds, and leaf-lard. In mild cases the kidneys are studded with minute points of coagulated blood, and in violent cases the pelves and capsules may contain extensive clots of blood. The characteristic exudation nodes (buttons of Welch) and ulcerations of the intestinal mucous membrane are rarely difficult to find, especially in the region of the ileo-cæcal valve, and may be confidently looked for to confirm a doubtful diagnosis. The hemorrhagic lesions of the skin,

lymphatic glands, and serous membranes are usually sufficiently marked to render a diagnosis certain, but these lesions are sometimes very slight, and an examination of the intestinal tract may be necessary to determine whether an incipient pneumonia or false membrane present in a given animal is due to cholera and swine-plague or other causes. The hemorrhagic lesions are sometimes not conspicuous, and may be readily overlooked when hogs are being slaughtered at the rate of 200 to 500 an hour. Swine-plague is usually manifested by a congested condition of the skin covering a large area, either one-half or two-thirds of the entire carcass, giving it the appearance of a deep-red blush. The internal lesions are most pronounced in the lungs, being a form of pneumonia in which yellowish points are discerned; these points are necrotic spots or centres. The serous surface of the lungs, as well as all other serous surfaces, may be covered with a fibrinous exudate, either in a thin layer or in many layers, and when the abdominal viscera is the region more generally involved, all of these viscera are agglutinated together. This condition ought readily to be discriminated from simple peritonitis, pleuritis, or pericarditis by involvement of the serous surfaces in other parts of the body and by the characteristic appearance of the lungs and skin. A diagnosis of hog-cholera or swine-plague should always mean condemnation of carcass and viscera.

Swine infested with *cysticercus cellulosæ* are found occasionally. In the few cases I have seen *cysticerci* were present in great number, pervading all the voluntary muscular structures and the heart. When found elsewhere the cysts were imperfectly developed. They appear as little sacs of water about one-fourth of an inch in diameter, lying upon and wedged between the muscular fibres. Each sac contains a white mass about the size of a millet-seed (a tapeworm-head) which projects from the cyst-wall. Flesh containing these cysts is commonly denominated "measly" pork, and is the source of tapeworm (*tænia solium*) in man. Of course, the flesh would be rendered harmless if thoroughly cooked, but would remain disgusting, and should be condemned.

The report of the Department of Agriculture states that 3.05 per cent. of all hogs examined microscopically by the department during the fiscal year ending June 30, 1893, were infested with *trichinæ*, and as the number examined exceeded 1,500,000, it is evident that this parasite is widespread and very prevalent. *Trichinæ* produce no gross lesions in the infested animal and are detected only by the aid of the microscope. They are found almost exclusively in

the muscular structures, and are most numerous in the tongue, diaphragm, and psoas muscles, but are confined to no section of the carcass. They are readily detected when magnified thirty to sixty diameters, and specimens of muscle, either fresh or cured, are easily prepared for examination, either by mincing or cutting into small pieces and spreading thin enough to permit light to pass through. The trichinæ are found coiled like spiral springs and are inclosed in sacs of transparent fluid, usually one in a cyst, but sometimes two or three, or even five or six. The cyst and contents, including the worm, are subject to both fatty and calcareous degeneration; in the latter form of degeneration the trichina is often black and fragile, being frequently broken into fragments in the preparation. Trichinized flesh does not differ from the non-infested flesh in appearance, and is harmful as food only when eaten uncooked. The communities and nations which eat their pork raw naturally require the inspection and condemnation of trichinized pork.

The cystic form of the *echinococcus veterinorum* is very common in swine, and the hydatids are found almost exclusively in the liver. While the authors have reports of finding this cystic parasite in all parts of the body of both man and animals, medical and veterinary records do not show such a widespread diffusion in this section of the country. The cysts vary in size from one-quarter inch to two or three inches in diameter and consist of a translucent double wall inclosing its full capacity of transparent liquid. The inner wall (mother membrane) is easily separated from the outer wall, and if divided it persistently rolls upon itself when effort is made to spread it flat upon a surface. The inner surface of this wall or membrane usually bears many minute whitish bodies, only observable upon close examination. These bodies are made up of from ten to twenty tapeworm-heads, which are plainly visible upon fifty to one hundred diameters, magnification. The cysts and contents are modified by degenerate processes and may be converted into abscesses. They are found on the surface or embedded in the substance of the liver and vary in number from one to many. Infested organs should be rendered unusable as food for man or beast.

This presentation in short review of the gross diagnostic lesions of disease and conditions of food-animals, and comments as to the disposition of the flesh, is all too brief, but may serve to open the discussion. Diseases and conditions which have not come under the writer's personal observation have been purposely omitted.

AUTOINTOXICATION IN CARNIVORA.¹

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AUTOINTOXICATION may take place in all the domestic species, but it seems to be most frequent in carnivora. Our knowledge of certain poisonous microbic secretions (*toxins*, *toxalbumins*) which, when introduced into the system, cause certain well-defined diseases, lead us to suggest that, on account of microbic and fermentative action in the digestive tract as well as certain chemic processes in the functions of nutrition, accompanied by the formation of compounds capable of poisoning the tissues, the body is in constant danger of intoxication both from without and within. This thought is most forcibly suggested to me by certain obscure and usually fatal diseases of the house-dog and the cat, accompanied by nervo-muscular symptoms or gradual inanition, with or without any apparent specific lesion on postmortem. A true solution of the details of such intoxication is only possible after we have a more thorough knowledge of the chemico-physiologic changes in the body. It is, however, quite appreciable that there are some conditions which favor the production of *ptomaïns* in the intestinal tract, from food fermentation, which may be poisonous in the same manner in which the toxin of the tetanus bacillus, remaining localized on the surface, is absorbed and intoxicates the nervous system.

The *leucomaïns*, the toxic compounds formed within the body, are an important factor. The ingredients of the food taken into the alimentary canal undergo chemic changes when digested: they are absorbed; the cells of the different tissues and organs select those materials necessary for their sustenance, and change these materials into their own proper cell-constituents. When the cell-tissue or organ acts or is exercised there are still other chemic changes: the nutritive pabulum a moment before absorbed is now destroyed, oxidized, or converted into poisonous compounds which, when not promptly eliminated from the system and allowed to accumulate (uræmic poisoning), or not neutralized by other products, produce certain symptoms. Again, the surplus albumin, fat, sugar, etc., not needed to maintain the nutritive balance, must be converted into other compounds for elimination from the

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system. In this vast laboratory of chemistry in the animal body, if the function of an organ be increased, diminished, or perverted, any one of such poisonous products may be formed in excess of its normal quantity or checked in its elimination or new compounds may be formed. A disturbance of the function of one organ, although of little import in itself, may alter the function of some other organ. We have abundant illustrations of the "functional sympathy" among all the organs and the altered functions resulting from its disturbance.

In order to show the complexity of the process of the organic disassimilation, as well as the many chemical compounds, the albuminous matter of the food is decomposed into :

1. Nitrogen—containing acids—uric, hippuric, and oxaluric ; the last, by losing its nitrogen, becomes oxalic acid.

2. Sugar, whence the formation of lactic, stearic, capric, valeric, succinic, oxalic, and carbonic acids, or the amides (starches) of these acids—leucin, tyrosin, glycocoll.

3. Cholesterin, whence the volatile fatty acids—caprilic, capric, valeric, butyric, propionic, acetic, and oxalic.

4. Sulphur, whence sulphates by oxidation.

The fatty matter is decomposed into glycerin ; the latter forms water, carbonic acid, and volatile fatty acids—oleic, stearic, and palmitic.

Starch forms dextrin and glucose, and, finally, lactic, butyric, acetic, and oxalic acids.

The *leucomains*, or toxins elaborated in the animal tissues during the process of selection by the cells, from the circulating fluid of those materials which they need, and of transforming the surplus, as well as the waste materials formed in these processes, into compounds capable of elimination from the system, are to the animal body what the toxins are to microbes, and the alkaloids, such as aconite, pilocarpine, to the higher plants.

The principal leucomains found in the body are : 1. Adenin ; 2. Plasmain ; 3. Sarcin, found in the white cells of the blood, the liver, spleen, thymus, kidney, and heart ; also in growing vegetable shoots. 4. Xanthin. 5. Pseudoxanthin. 6. Paraxanthin, isomeric with theobromin. 7. Hetroxanthin, found in small quantities in the urine of the dog. 8. Guanin. 9. Carnin, found in yeast and extract of meat. 10. Creatin in the muscles, brain, blood, and at times in the urine. It has no toxic properties. 11. Creatinin, in the muscles, blood, organs, urine, and

some animal secretions. It is a strong base and, when excessively alkaline, possesses toxic properties (Cadeac).

Various other principles, endowed with great toxic properties, but which have not been isolated, exist in the bile, urine, etc. In a culture of bacteria the latter will cease to vegetate when the medium becomes saturated with toxin secreted above a certain point. Likewise, the living animal tissues, when they become saturated above a certain point with one or more of the toxic principles elaborated within the body or absorbed from the intestinal tract, show perversion of function and symptoms of disease. More than this, these toxins are capable of producing anatomic alterations in the organs, as is seen in the liver and kidneys. Venin, the animal toxin of certain snakes, for example, produces nephritis in susceptible animals.

These various chemic processes in the body are under the control of definite functions and properties possessed by the cells. When such properties and functions become perverted, either by an altered supply of nutritive material, deviation in the intrinsic functions of the protoplasm, or in the excretory functions, the nature and regularity of the phenomena of nutrition become altered and the body becomes saturated with obnoxious materials. The organs most essential to nutrition, the emunctories and nervous system, are probably those frequently at fault primarily. Again, some rich food-stuffs are converted into toxins formed either in the digestive tract or after absorption into the system. Excessive absorption of nutrients from the intestinal mucous membrane cause plethora of the liver, prevents the subsequent assimilation and disassimilation, and disturbs the glandular secretions. Wheat and barley fed in excessive quantity produce laminitis; vetches are said to cause roaring. Meat, wholesome at the time of ingestion, may, when it remains too long in the stomach or when the digestive secretions are altered or insufficient, become poisonous. Whatever be the source of the toxic agent which circulates through the system, the consecutive phenomena vary according to its nature and the organs affected by it.

The organs offer a different susceptibility to the diverse toxic products. The phenomena may be due to a local or to a reflex action. For example, stimulation or neuritis of the central end of the several pneumogastric or the first dorsal nerve is followed by sugar in the urine; stimulation of the fourth ventricle, by sugar and albumin in the urine. To give many specific illustrations of autointoxication and prescribe therapeutic means require more

knowledge of the physiologic processes than we now possess. A few may be attempted. For instance, *nervine*, resulting from the decomposition of lecithin, a nerve-tissue by-product, is exceedingly toxic, one-sixth of a grain destroying a cat. Cholin, found in the blood, muscles, and bile of the pig, is also virulent. Other illustrations of toxic formations in the system, to which they are detrimental unless their effects are neutralized, are the thyroid and pituitary bodies, suprarenal capsules, pancreas, spleen, and bone-marrow. Numerous experiments have shown that in some animals—dog, cat, rabbit, and some herbivora—the thyroid body contains toxic principles which are capable of producing goitre, myxœdema, cachexia, and, in young animals, arrest of development; that if the thyroid be removed, these principles elaborated in the organs will accumulate in the system with the above characteristic symptoms. One of the products isolated from the thyroid body is thyreoproteid. It is the product of organic changes in the body, and, when the thyroid is removed, produces an acute intoxication. Another substance isolated, but formed in the thyroid, is thyroidine; it contains nitrogen and iodine. It acts upon the thyreoproteid as a ferment, which it thus renders innocuous or neutralizes like a sort of antitoxin. Thus, when the thyro-antitoxic function becomes disturbed, the principles ordinarily neutralized by the products of the thyroid accumulate in the system, and *intoxication* is the result. We can offer no better explanation than this for such conditions as cholæmia (jaundice), gout, rheumatism, stercoræmia (fecal intoxication), diabetic coma, uræmia, and probably also chorea, neurasthenia, asthma, and idiopathic anæmia, although the toxic nature of the substance has not in all cases been determined. We find an illustration of this in azoturia. If Möller's theory of the excessive acidity of blood is correct, it is an intoxication.

Then we have the various diatheses, the arthritic, herpetic, and scrofulous. The nutritive processes are disturbed, the system is overloaded with materials which the cells cannot utilize, and rheumatism, diabetes and obesity, and deposits of inorganic salts result. In the herpetic diathesis we have the various skin troubles, eczema, etc. Herpetic diseases were described as caused by an excess of lactic and uric acids, etc., and by our sister practitioners are treated principally with alkalies. In aged dogs the nutritive chemic functions are not performed with the same activity and accuracy as in the young. In dogs and often in kittens we have obesity and eczema. During the hot season, when the cuta-

neous circulation is active and loaded with such materials, we meet skin troubles; in the cold season, when the pulmonary circulation is increased at the expense of that of the skin, we find catarrh of the bronchial mucous membrane, which is seen to appear when the skin trouble disappears. We can understand why local treatment is not permanent. In young dogs we find ulceration of the cornea. In the horse we have acute and chronic affections of the skin, such as grease and urticaria, and, perhaps, lymphangitis. When a horse is "out of condition," a polite term to cover our ignorance, may there not, owing to excess or a change of food or other adverse influences upon the system, be a disturbance in the nutritive forces of the tissue, the production of a milk poison, which checks the digestive and cutaneous secretions, depress the circulation and the nervous system, and, hence, the loss of appetite, dry coat, slow circulation, and general depression. We see cases, especially in the horse, also in other animals, accompanied for a week or more with absolute loss of appetite, little or no fever, extreme depression, emaciation, probably a yellowish coloration of the mucous membranes, and an acute intoxication of many of the tissues; also low, adynamic fevers sometimes lasting for some time.

Evidence of autointoxication appears most frequently in the carnivorous house pets. This is especially facilitated by their unnatural condition of living, lazy habits, and errors of diet. Frequent indigestion and gastro-intestinal catarrh, constipation, fetid diarrhœa indicate altered nutritive function and the frequent probability of the absorption of or the formation within the body of toxic products. These most frequently assume the nervous and the cachectic forms. In middle-aged and old dogs I have most frequently found convulsive symptoms to dominate. They are not the benign convulsions seen in young animals. The animal may be attacked suddenly by spells of exciting, running around the house, followed by frequent paroxysms of convulsions, muscular relaxation, and death. Again, I have seen allied conditions complicating other diseases. For example, the patient may be convalescent from broncho-pneumonia, progress favorably, but at a given time and without any aggravations of the primary disease, which may have disappeared, the constitutional symptoms relapse with gradual loss of appetite, weakness, emaciation, and death.

In cats these phenomena may assume the nervous or the cachectic form. In the former, the pet appears frightened, with slight convulsions, inappetency, and death in the course of some days. In

the latter, without any apparent cause, the animal refuses to eat shows emaciation, shedding of fur, constipation, or diarrhoea, cachexia for weeks before death; also catarrhal condition of the mouth and pharynx, with discharge from the nose. Temperature toward the termination of the disease subnormal. In a few instances I have been called to treat the animal for severe eczema, soon after the treatment was commenced, and no drugs were given that could explain the symptoms convulsions, and death in about a week followed. Were the two conditions due to the same toxic agents? Again, stercoræmia, infection from the intestines, may in these animals cause primary troubles or complicate recovery from other diseases.

I have made a few postmortems of a number of such animals and found the usual lesions that toxic infections present. The liver and kidney were the seat of lesions. The former in one cat was enlarged, fatty (infiltration), the proper tissue having almost disappeared. The kidneys in both dogs and cats were altered; the entire cortex, the secreting portion (Malpighian bodies and convoluted tubules) were fatty, and the line of separation from the medullary portion was very abrupt. We have in the kidney evident lesions, nephritis, and fatty degeneration, showing that some irritating toxic agent has been continually excreted by these organs, and when the latter were no more able to remove this principle from the blood, death soon followed. We see analogous lesions in animals after the prolonged administration of mineral poisons, such as arsenic and mercury. In other cases no decided alterations may be found. Such symptoms and lesions in cats I have seen very frequently.

The treatment is, perhaps, contingent. If such alterations as I have described have progressed far, it is of little value. Digestive and systemic tonics and cardiac stimulants are given. Bowel antiseptics with thymol, salol, creolin, etc., are indispensable; also diuretics and alkalies, to neutralize any toxic principle and assist in its excretion; regulation of the bowels and stimulating baths.

It is not my intention to classify promiscuously too many conditions under the head of autoinfection, but that it is an important factor in pathogenesis and may include many conditions heretofore not understood.

RABIES, WITH A REPORT OF TWO RECENT OUTBREAKS.

BY A. B. KELLY, D.V.M.,
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(Concluded from page 666.)

Diagnosis. After searching the history of a case thoroughly, and carefully considering the objective symptoms, an expert can generally diagnose a case of rabies, although many cases will demand the animal-inoculation test. We may confound this affection with hysteria, tetanus, encephalitis, lead-poisoning, tumors of the plexus, spasmodic sore-throat, several parasitic diseases, and lyssa-phobia. In all these cases the history is lacking—the patient has not received a bite, there has not been any strange dog about, the disease is not known in the locality, the attack is sudden, the victim is not vicious, and animal inoculation gives negative results.

The excitement occasioned by the presence of a dog is very characteristic.

A case of pseudophobia is diagnosed by the length of the period of incubation, the absence of some of the most characteristic symptoms, owing to the person's lack of knowledge of the malady, by the mildness of the hyperæsthesia, and by the readiness with which the disease yields to mental treatment, such as the mad-stone and reasoning.

*Method of diagnosing rabies by animal inoculation.*¹⁰ Rabbits or guinea-pigs are commonly used, as they are easy to handle and quite inexpensive. Have an assistant place the animal under the effects of a general anæsthetic (ether generally preferred); cut the hair off of the section between the eyes and ears, wash with soap and water, followed by a disinfectant. During this time the operator should sterilize all the instruments to be used, and thoroughly cleanse and disinfect his hands. When complete anæsthesia is produced, make a longitudinal incision in the skin and subcutaneous tissue, and use a speculum to widen the aperture; then make a crucial incision in the periosteum on one side of the median line, to avoid hemorrhage from the longitudinal sinus; push aside the four flaps and insert a small trephine, removing a small piece of bone, exposing the dura mater, and with a hypodermic syringe inject one or more drops of a suspension in water of the suspected brain beneath the dura, replace the periosteum; suture the skin, disinfect and return the animal to a cage. If the inoculation has

been successful, the animal will soon recover from the effects of the operation, and will generally eat heartily the second meal thereafter.

To prepare the suspected brain for injection remove it with aseptic precautions, place a small piece of it in a sterilized mortar, and grind finely with a few cubic centimetres of sterilized water or bouillon.

After recovery from the operation the animal should remain well until the specific symptoms begin to appear, usually from fifteen to thirty days after the inoculation. Rabbits rarely become furious, but at times they are rather nervous for one or two days prior to the paralysis. There appears to be marked hyperæsthesia. Usually the first indication is monoplegia or paraplegia, but soon the whole animal is affected, and lies prostrated until relieved by death, which usually occurs within twenty-four hours after the complete paralysis sets in. Although all voluntary movement is lost, the reflex action may be noticed until within a few hours of death. During the period of incubation the temperature is normal until near time for the first symptoms to appear; then there is a rise of 1° or 2° F., which lasts for one or two days, and then suddenly drops to subnormal, where it remains until death.

The differential diagnosis, in this way, is not very difficult. If death were due to septicæmia there would be marked lesions in the brain and viscera, and by bacteriological examination of the blood the microörganisms would be found. If death were due to mechanical injury it would occur very soon after the inoculation, or, at least, the paralysis would be preceded by a stage of disability. A paralytic stage precedes death from various pathogenic germs, but the period is short, and you would invariably have the symptoms and lesions of the specific disease. Therefore, this method requires that the inoculated animals remain well for a considerable length of time after the subdural injection and before the paralysis appears; the wound in the head should be healed perfectly, with no abscess-formation; the meninges should be free from exudates, and the brain should appear perfectly normal, except in rare cases there may be a slight congestion. The liver may be deeply reddened, and the gastric mucosa may show dark patches, indicating disintegrated hemorrhagic areas. The intense rigor mortis following a death from rabies is very important.

Treatment and Prevention. The treatment is almost exclusively prophylactic, as very few cases of recovery are recorded where the disease has developed. In a country where rabies exists the bite

of any carnivorous animal should be treated as though the assailant were known to be rabid, as any one of this species that has been allowed to run at large may harbor an attenuated virus which would rapidly propagate in the victim.

Therefore one should, if possible, thoroughly cauterize such a wound with some active chemical caustic or the actual cautery. If the wound is on a limb, and no caustics can be obtained, he should, if possible, apply some form of a tourniquet to arrest the circulation, and drink warm liquids to prevent absorption. Suction is important, this being accomplished either through a tube or by the lips, the mouth being frequently washed out by some disinfectant. When using solid caustics, such as nitrate of silver, chloride of zinc, caustic potash, or sulphate of copper or iron, it is necessary to apply them to all parts of the wound, and if a fascia prevents this, it should be severed. If liquid caustic, such as the mineral acids, be used, a pledget of cotton on a forceps or stick will generally suffice. Probably the thermo-cautery is the best, as by this you can reach any part of the wound, and it does not expose any new surface without first cauterizing it. If a tourniquet has been applied, it should not be removed until the wound has been thoroughly cauterized. One should not omit the cauterization on account of a delay after the bite. Some advise excision of the parts, but in doing this, strict antiseptic principles should be adopted. It may be necessary to amputate a member, if its tissues are very badly lacerated; but in the lower animals this is only resorted to when the wound is in the ear or tail, to prevent absorption of the poison.

A wound should not be neglected because it is small, as some of the smallest are the most serious. Even if the flesh is not broken the part and clothes covering it should be thoroughly disinfected, as the virus may gain entrance through some other laceration.

The victim may be in great pain caused by the wound, in which case it may be necessary to give morphine, chloral, bromide of potassium, or calabar bean hypodermically; suppositories of morphine may also be used. Any symptom appearing during the attack should be treated as such, and great care must be given to the general health. When once well established the disease is incurable, the only treatment possible being palliative, the victim being placed in a darkened room, with not more than two careful attendants. By the local application of cocaine to the throat a patient may be enabled to take food; otherwise nutriment must be administered in the form of an enema.

One of the best-known treatments is that devised by M. Pasteur; it consists of a series of subcutaneous injections of the rabid virus, the potency of which is so regulated by the following method that a stronger virus may be injected each succeeding day until the system is so educated that it prepares an antitoxin which will combat the virulent action of the virus of rabies.

To prepare this virus he inoculated rabbits subdurally, one from another, until the disease developed in six or seven days after the inoculation; the virus then having attained its greatest potency is called the "fixed virus." These last rabbits are killed, and aseptic sections of their cords are preserved *in vitro*, in free but aseptic air (which has been dried by contact with caustic potash) for periods varying from one to fourteen days. The virulence lessens day by day, so that the fourteenth-day product can be inoculated with perfect safety.

The injections are made in the hypochondriac region, as the cellular tissue is loose and very absorbent in this part.

He advises two forms of treatment, namely, a simple form, for those bitten through clothing, and an "intensive" form for those bitten on the face, throat, or hands.

The simple treatment is as follows:

1st day two 3 cc. doses of solutions of 14th and 13th-day brains.									
2d	"	two 3	"	"	"	"	12th	"	11th " "
3d	"	two 3	"	"	"	"	10th	"	9th " "
4th	"	one 3	"	dose	"	"	7th		" "
5th	"	two 2	"	doses	"	"	6th		" "
6th	"	one 2	"	dose	"	"	5th		" "
7th	"	one 2	"	"	"	"	5th		" "
8th	"	one 2	"	"	"	"	4th		" "
9th	"	one 1	"	"	"	"	3d		" "
10th	"	one 2	"	"	"	"	5th		" "
11th	"	one 2	"	"	"	"	5th		" "
12th	"	one 2	"	"	"	"	4th		" "
13th	"	one 2	"	"	"	"	4th		" "
14th	"	one 2	"	"	"	"	3d		" "
15th	"	one 2	"	"	"	"	3d		" "

The "intensive" method is as follows:

1st day, morning, two 3 cc. doses of 14th and 13th-day brains.									
		evening,	two 3 cc.	"	"	12th	"	11th-day	"
2d	"	morning,	two 3 cc.	"	"	10th	"	9th-day	"
		evening,	two 3 cc.	"	"	8th	"	7th-day	"
3d	"	morning,	one 2 cc.	dose of	6th-day	brain.			
		evening,	one 2 cc.	"	6th-day		"		

4th day	one	2	cc.	dose	of the	5th-day	brain.
5th "	one	2	"	"	"	5th "	"
6th "	one	2	"	"	"	4th "	"
7th "	one	1	"	"	"	3d "	"
8th "	one	2	"	"	"	4th "	"
9th "	one	1.5	"	"	"	3d "	"
10th "	one	2	"	"	"	5th "	"
11th "	one	2	"	"	"	5th "	"
12th "	one	2	"	"	"	4th "	"
13th "	one	2	"	"	"	4th "	"
14th "	one	2	"	"	"	3d "	"
15th "	one	2	"	"	"	3d "	"
16th "	one	2	"	"	"	5th "	"
17th "	one	2	"	"	"	4th "	"
18th "	one	2	"	"	"	3d "	"
19th "	one	2	"	"	"	5th "	"
20th "	one	2	"	"	"	4th "	"
21st "	one	2	"	"	"	3d "	"

The best evidence of the efficiency of these methods is the fact that in selected cases but 0.54 per cent. of the persons bitten and so treated have contracted rabies.

In 1889 Babes and Lepp⁶ conceived the idea of transmitting conferred immunity from one animal to another by means of the blood. However, their success was not great in this line. Since then Tizzoni and Cetanni⁶ have worked out a method of producing immunity by the blood-serum of an immunized rabbit. They found that this serum would sterilize an emulsion of a rabid cord in five hours, and then proceeded to experiment with living animals, and succeeded in producing immunity in a majority of cases.

They inject this as Pasteur injects the virus, subcutaneously. Their starting-point or standard was called "virus fixe," which was obtained by passing the virus from rabbit to rabbit until it reached its most potent form. They then prepared a series of weakened solutions by subjecting this material to the action of gastric juice; and, beginning with the weakest virus, they gradually increased its strength daily, or nearly so, by which method they could protect rabbits, dogs, and sheep. By continuing the process they succeeded in twenty days, after seventeen injections, in producing such a large amount of antirabic substance in the serum that, if injected twenty-four hours before the poison, even so small a proportion as 1 : 25,000 of serum to the body-weight would protect an animal. They also found that by injecting a little larger dose, with a rabific virus, or twenty-four hours after it, that the serum would protect the animal. They obtained a

more powerful serum by revaccinating sheep, the injections being made during a course of twelve days, 0.25 gramme of the emulsified cord per kilogramme of the body-weight being injected daily. This process may be continued as often as required, so long as the interval between the courses is of sufficient length to allow the patient to keep in good condition. The series of vaccination may be repeated at intervals varying from two to five months.

This method has many advantages over Pasteur's treatment, as the serum can be dried and kept for a long time, and yet retain its antirabic properties. It can be sent by mail and used in the home, as it is readily soluble in distilled water or sterilized normal salt solution. However, great care must be exercised to prevent its becoming contaminated.

Again, Pasteur's method has an advantage over this one, for by his method the antitoxin is produced in the body, and therefore begets a permanent immunity, while by Tizzoni's method the antitoxin is introduced into the system, and is, of course, soon eliminated, causing only a temporary protection.

SANITARY POLICE. 1. Reduce the number of dogs by taxation, the authorities destroying all dogs that do not wear a license-tag or muzzle.

2. Quarantine for three months all dogs entering the country, unless accompanied by an official certificate that the country where they came from is free from rabies, as Australia, Argentine Republic, etc.

3. Compulsory killing or securely locking up, for at least six months, of all dogs or cats suspected of rabies, or that have been bitten by a supposed rabid animal. File sharp points of tusks.

4. Cause every dog in a community where rabies has prevailed within a year to wear a muzzle; all unmuzzled dogs to be shot by the authorities.

5. Destroy, as far as possible, all foxes, wolves, badgers, martens, skunks, and other vermin in a district known to have rabies.

6. Destroy by fire, or thoroughly disinfect, kennels, litter, blankets, collars, ropes, sticks, rags, dishes, or any utensils that have come in contact with a rabid animal. Disinfect wagons or any vehicle used to transfer such a cadaver. Disinfect or destroy by fire the stall or manger where a rabid animal has been confined. If it has been at pasture, do not allow other animals to enter such pasture for one week or ten days, as they might have or receive a laceration and become infected, although it is generally alleged that the blood and saliva are not virulent over twenty-four hours

after leaving the body,¹¹ but in a dry state may retain the virulence for a long time.

7. Do not allow people to go barefooted around a vicinity where rabies is prevalent.

8. Furnish owners of dogs with a description of the premonitory symptoms of rabies, that they may at once kill or shut up and report any suspected case to the authorities.

9. Forbid the sale or consumption of any part of or the products of any suspected animal; this refers to meat, hides, tallow, and milk particularly.

10. If any domestic animal be suspected of rabies, shut it up, and, upon the appearance of the symptoms, destroy it.

11. Burn or bury deeply the cadavers of all victims, and do not allow them to be skinned.

In closing, I wish to acknowledge my gratefulness for the assistance received from Professors Law and Moore.

(To be continued.)

Dr. J. P. Turner, Inspector of Dairy-farms in the District of Columbia, reports the following interesting case: A grade Jersey cow was served by the bull sometime in December, 1897, and was considered as being pregnant, as she did not "bull" any more; was only served once. In March, 1898, the flow of milk ceased, and soon after she aborted a foetus, which was about three months old. The flow of milk again returned, and the cow milked until the last of July. This cow gave birth to a large, well-formed heifer calf about September 25th.

Query. The same writer desires to hear from other veterinarians as to what percentage of fox-terrier puppies are born with short tails. He reports one litter of six pups, three of which had short tails.

Veterinarian E. C. Porter, of New Castle, Pa., is a hustler in politics. He was elected Coroner of Lawrence County on November 8th, by a plurality of 2254, running 650 ahead of the other Republican candidates. Among his stalwart supporters was Veterinarian E. E. Bittles.

Dr. R. S. Huidekoper, lieutenant-colonel of the First Army Corps, recently located at Porto Rico, is temporarily in Washington, D. C.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS, PH.D.,
PRINCETON, N. J.

COMPARATIVE STATISTICS OF CYSTICERCUS CELLULOSÆ IN THE EYE OF MAN AND OF ANIMALS. (By Meat-inspector Prettnr, Prague.)—According to Leuckart, the favorite places for cyst. cell. are the muscles of the breast and shoulders, the tongue, the diaphragm, and the thighs. The heart and under-skin also are often covered with blotches, as well as the nerve-centres and eyes, while the intestines as a whole are seldom affected.

Von Graefe observed about one hundred cases of these pimples in the deeper parts of the human eye, and reckons the frequency of the cysticercus for the Berlin eye-clinic at one in every thousand cases of eye trouble.

In the front part of the eye, on the other hand, he noted only nine cases in all: five under the conjunctiva, two in the front chamber, one in the lens, and one situated in the orbita—in all, hardly one-eighth of those which occur in the subretinal tissues. In all the cases observed by von Graefe there was only a single cysticercus in the eye. This fact is confirmed by O. Becker, who in only one case found more than one cysticercus in the human eye. In strong contrast, a considerable number have occasionally been found in the eyes of swine. Nordmann, in one case, counted twelve, of which six were in the ball, and the others between the sclerotica and the chorioïdea.

The first man who ever observed this pimple is supposed to have been Adrian von der Spiegel, about two hundred and seventy years ago. But it is questionable whether it was a case of cyst. cell. Not until the present century was the cyst. cell. recognized in the human eye.

Von Schott, in the year 1830, found a living bladder-worm (?) in the eye of a man, and by an operation in the cornea extracted it. Many others report cases of pimples in the eye, and in every case it is a question of the swine-pimple. Prof. Hirschberg, between 1869 and 1885, found seventy cases of cyst. cell. among 60,000 cases of eye trouble. In recent years reports have been much more seldom. Between 1886 and 1889 Hirschberg, in 30,-

000 cases of eye trouble, observed only one case which was operated upon. This striking rarity cannot be accidental, and Hirschberg is inclined to attribute it to the stricter system of meat-inspection.

“The cysticercus cellulosæ has, up till now, been found in the various parts of different muscles, especially in those of the heart, in the cellular tissue, in the brain, and in the eye of man. In all these places, according to the space it has for development, the cyst. cell. assumes a different form and size. Its most striking forms are found in the lobes of the brain and in the eye. The softness and looseness of the tissue determines the size and form of the cysticercus.”

It may be of interest to say, briefly, that many attempts have been made to prove experimentally the transformation of the eggs of the *tænia solium* into the cysticercus. Dr. von Ammon and Prof. Heubner made this experiment by placing the eggs of the *tænia solium* into the conjunctiva, which had been previously opened for the purpose. These experiments were without result.

Up till now little attention has, alas, been given to the appearance of cyst. cell. in the eye of animals. Text-books contain only meagre references, possibly owing to the fact that the disease is so rare.

During three months of last year in the slaughter-house here I examined 400 swine affected in different degrees with cyst. cell. on the muscles of the eye, the eyelids, and the inner side of the eyeball. The result of this investigation proved again that the occurrence of cyst. cell. in the eye of swine is very seldom, and a still greater rarity on the eyelids and eye-muscles. Of the 400 cases pustules were found inside the eye only twice, beneath the retina. Twenty per cent. showed an affection of the eye muscles, but only when the animal was severely affected and the masticatory muscles, those of the neck and foreparts, were saturated with pustules.

In seventeen cases I found the pimples on the eyelids close to the inner corner of the eye. The two cases of subretinal cysticercus were found in swine which were otherwise little affected, and it is very possible that swine which are not recognized as infected at the time of inspection may show this trouble in the eye. It is therefore worthy of a closer examination in the future.—*Thierarzt. Centralblatt*, June 1, 1898.

CHEAP PRACTITIONERS. The *Brunn Volkszeitung*, under the headline, “A Beautiful Help for Cattle,” relates the following

incident: "In the community of Lichnau, on May 14th, Franz Petr summoned the horse farrier of his native place to visit a mare suffering from colic. The farrier declared that the mare was about to give birth to a colt. Not being able to gain access to the foal, he pulled out his knife, cut a hole in the vagina, and out of this hole pulled a piece of intestine a yard long which he declared to be the placenta. The horse died, naturally, after such a performance, the loss amounting to a hundred dollars."

What have the zealous advocates of "cheap practitioners" to say to this?—*Idem.*

DEVELOPMENT OF THE EMBRYO OF THE HORSE. According to Prof. Ewart, in the horse transition from the nourishment by the amnion (yolk-sack) to that of the allantoid takes place between the sixth and ninth week. The embryo is now connected at one pole more directly with the wall of the uterus. The offshoots of the allantoid during these eight weeks are still small, and the fixation of the embryo is not firm, so that at this time, in reference to nourishment, it is passing a critical point. Besides this, sexual excitation takes place in the third, sixth, and ninth weeks, and this can become dangerous to the embryo. For this reason abortion in mares frequently takes place during the sixth to ninth week of pregnancy. As a means of prevention, Ewart recommends that all changes in food, temperature, stall, and surroundings be avoided.—*Idem.*

A TEST OF FRESH MILK AND THE IMPURITIES CONTAINED THEREIN. According to the *Rundschau für Pharmacie, Chemie, Hygiene*, etc., Vaudin recurs again to the well-known phenomenon that milk which has been colored pale-blue with a few drops of indigo solution, after a short time loses this color. This phenomenon which, by an infusion of air can be repeated many times anew, is due, according to Duchalaux, to the activity of bacteria contained in the milk. In fact, boiled milk in which the micro-organisms have been killed does not manifest this phenomenon. The purer and fresher the milk the longer it remains discolored, until all the effects of the indigo solution vanish. For a long time the freshness of milk has been tested by the fact whether it would stand boiling without coagulation. Wholly aside from the fact that many dairies which stand this test may be pretty old, it is well known that coagulation from boiling can be prevented by the addition of sodium bicarbonate or borax. In regard to the re-

action with indigo solution, these means are without effect and cannot hide the truth. According to Vaudin, this test is therefore especially well fitted to keep old milk out of the market. A simple regulation could be enacted that all milk offered for sale must retain the discoloration from indigo solution for a certain time. This period of time would have to be determined by careful experience and, since it depends upon temperature, also for different temperatures. According to the author, the time for temperatures below 15° C. is at least twelve hours; for 15° to 20° about eight hours, and for temperatures above 20° C. four hours. As a result of such a regulation, Vaudin expects greater cleanliness in milking on the part of the farmers and the preservation of lower temperatures in storing and transportation.—*Idem*.

ORGANO-THERAPEUTICS. Landau recommends that organo-therapeutics should be opposed for the present on the ground of lack of proof. The whole basis of this therapeutics is very doubtful, for even if certain diseases are caused by disturbances of the glands, in most cases it is a question of the failure of the function, which cannot be replaced by dead tissue dissolved and chemically changed by digestion, because function is an activity of living, not dead cells.—*Idem*.

POINTS.

North Carolina will ask from members of the veterinary and medical profession, laws to better regulate animal-food inspection at the coming session of the State Legislature.

Philadelphia veterinarians will move this winter on the dispensers of milk whose wagons and places of business are emblazoned with letters claiming veterinary and sanitary inspection of dairies, many of whom make only the merest pretence to the proper performance of this work.

Under a more thorough inspection tuberculous carcasses have increased from 7 to 25 per cent. in Saxony's slaughter-houses.

The Maine Veterinary Medical Association will introduce a bill at the next session of the Legislature looking to the establishing of a State examining and registration board.

DEPARTMENT OF SURGERY.

EDITED BY L. A. MERILLAT, V.S.,
SECRETARY M'KILLIP VETERINARY COLLEGE, CHICAGO.

CURATIVE methods may be properly classified in the order of their importance into: 1, surgery; 2, sanitation, and 3, medical therapeutics. The veterinarian who is proficient in each may reasonably expect a successful career, while the one who disregards either or seeks only mediocrity in each is destined to a lower rank.

Therefore, the object of dedicating this department to the JOURNAL and its readers is to bring one of these subjects, surgery, prominently and continuously before the readers of English veterinary literature; to encourage and urge a more frequent yet judicious application of the art of surgery as a curative measure, and give the reading veterinarian the benefit of the experience and deductions of others, and thereby improve and increase the domain of veterinary surgery.

The work of editing such a department is entered upon with a full knowledge of its magnitude and the responsibility such a duty entails, without, however, any claim of proficiency or special qualification for the work. The prime motive is more to add one small mite toward the advancement of veterinary surgery and induce others to exhaust, if possible, the other topics.

Modern surgery has supplanted the medical therapeutics of so many diseases and conditions that the veterinary practitioner is seeking greater skill in its application and higher attainments in the art generally; but since proficiency in surgery can only be acquired through practice, too much should not be expected from literary instruction. The object of this department will be accomplished if its readers are led to attain, more rapidly, the skill which their own self-training alone can achieve.

The successful surgeon is a cool-headed man of great resources, has a perfect knowledge of anatomy, is cleanly in his work, skilled in the use of instruments in hand, cautious if not proficient in diagnosis, and exercises the greatest care in securing and restraining his patients. He is both judicious and bold, and reluctant to undertake work simply for the purpose of performing a "beautiful operation" when the chances of success are limited. Such a procedure to him is excusable in the college clinic, but never in practice.

The methods of restraint are too well known to require any descriptive details. I might, however, mention that the practitioner should adopt particular methods and adhere strictly thereto, as a deviation from an adopted or accustomed method is too often a cause of accident. The twitch and single side line are sufficient for operations performed in the standing posture. If the head is pushed high and the animal prevented from going forward, accidents by this method are extremely rare. In the recumbent position, whatever method is adopted, the animal should be cast only upon a deep, soft bedding and tied taut, to prevent injury from struggling. Fractures of the pelvis and vertebræ—the usual accidents of this method—are thus prevented. The operating-table has its advantages, especially for unilateral operations, but since so many operations are bilateral, and so many require special positions of the body or limbs, the universal use of the operating-table cannot be recommended. The operating-room should be ventilated on all sides and kept aerated continually while not in use. The floor is bedded with pine-shavings to the depth of one foot. These are sprinkled daily with a solution of potassium permanganate. A clean rubber sheet or sterilized rug is spread over them at the seat of operation when the animal is cast and prepared for operation. If then the rules of aseptic surgery are carefully carried out pus will be a rare sequel in the ordinary operation.

Anæsthetics. The anæsthetics which will be found reliable and answering every purpose are:

- (a) Chloroform for the horse and ox.
- (b) Ether for the dog and cat.
- (c) Cocaine (10 per cent.) for local anæsthesia.
- (d) Ethyl-chloride spray for simple incisions.

A discussion of the relative merits of other anæsthetics which have come into use during recent years only leads to the conclusion that the above possess all the merit required of anæsthetics. Chloroform is particularly effective and safe in the horse, but dangerous in the dog and cat. In the latter ether is equally effective and safe. Cocaine, in a 10 per cent. aqueous solution, is a safe topical anæsthetic when administered in doses not to exceed 1.3 c.c. (20 m.).

The *administration of anæsthetics* will be discussed in the next issue.

REPORTS OF CASES.

CÆSAREAN SECTION.¹

BY F. F. HOFFMAN, V.S..

BROOKSVILLE, PA.

THE animals on which I have most frequently performed the operation are the sow and the bitch.

The most important point in this operation depends upon the manner in which we open the uterus. As a rule, these cases come to us after the patient has been in labor for two or three days and many efforts have been made by the owners and others to deliver the young. At such times we usually find our patient exhausted, the external organs lacerated and swollen, and part of a dead foetus engaged in the vaginal canal, thus leaving but one chance, and that by operation.

Mode of procedure: I chloroform the patient, clip or shave the parts, scrub well with antiseptics; make my incision through the flank, pass the hand in, and draw the foetus back. I then empty the bladder, after which I draw the uterus out and make the incision through the body, parallel with the bloodvessels, not across them, and thus avoid hemorrhage and laceration. The removal of the foetus is now easy. Wash out the uterus and close with carbolized suture. Sponge out the abdominal cavity in the usual way and dress the wound antiseptically. The after-treatment of the case depends upon the condition of the patient. Five were operated upon during the past summer; one died under chloroform. Out of seventeen cases, consisting of sows, bitches, and cats, four have died.

The Commissioners of the District of Columbia will ask for three veterinarians next year: one for the police, fire, and engineer departments, and two for the health department, to act as inspectors of livestock and of dairy-farms. Surely no better evidence of an intelligent conservation of the health and comfort of the residents of the district could be exhibited.

¹ Abstract of report read at the semi-annual meeting of the Pennsylvania State Veterinary Medical Association.

EDITORIAL.

AN IMPORTANT ACTION.

THE veterinary profession all over the land will watch with the keenest interest the progress and outcome of the lawsuit for damages entered upon for libellous statements by one of New York's prominent veterinarians. The misdoings of a few members of the profession in that city, through the taking of bribes, commissions, and other compensation than their legitimate fees in conducting examinations for soundness, have for many years been a serious shadow upon the general reputation of the profession. The writer has heard many dealers speak in scathing words of the demands of veterinarians of Gotham in conducting their sales, and indulging in such remarks as "There is not one of them that will not take a commission." Growing bolder in their general charges of dishonesty against the profession, one of them has intimated in writing to a would-be purchaser that he could not meet the fee demanded by his veterinarian, hence the rejection of his horses in the examination. In defence of the honor of the greater number of the profession a suit for \$10,000 damages has been instituted against this dealer, and its successful termination will put an end to these imputations, very unjust to the great body of veterinarians of Greater New York, whose honesty and integrity in this trying work of their calling merit the fullest confidence of horse-buyers.

IN 1899.

BALTIMORE has entered the field for the place of meeting of the A. V. M. A. next year. The State Society, through its President, has formally invited the Association to that Southern city, so famed for its open-hearted generosity and hospitality. One of the most successful meetings of the Association was held in the "Oriole City" in 1888, and its work, its reception, its influence for good were well marked, and added much to the general advancement and enhanced recognition of the profession. The devotion to Association interests of a number of Baltimore's veterinarians is of such a character as to make that city an attractive one, and would, had she not been so late in the field for the coveted honor, no doubt have found a place in the front rank.

Detroit, with her ever-zealous interest for the welfare and fame

of the "City of Straits," is also knocking at the doors of the executive committee. The civic bodies, commercial organizations, etc., are ever anxious to bring to their city organized bodies and conventions of every character and kind. Her railroad facilities are all that could be desired, but her geographical position will hardly command the Association's meeting until Cleveland, Columbus, or some more central point is touched that will reach a larger number of those in that territory who should be active in the American association.

TURN ON THE LIGHT.

THE controversy now going on between the Cattle Commissions of New Hampshire and Maine is destined to shed a great deal of light on the value of the several methods adopted in the various States of this country in dealing with the subject of tuberculosis among cattle. To scientific observers no more dangerous statements have been promulgated anywhere in the world than have emanated from the authorities in New Hampshire; based upon unfair or unscientific data or experiment; contrary to the conclusions drawn in many tens of thousands of cases, and in opposition to the expressed conclusions of the greatest authorities over the world. More than that, the most widespread publicity was given to these false deductions and conclusions; by farm and livestock journals all over the land, just at a time when an aroused public was startled at the knowledge of the extent of bovine tuberculosis, when livestock owners should have been foremost in supporting every movement for the extermination of this plague, as a matter of self-preservation, and be found supporting this work, but who, more eager to save a penny and waste a dollar, have checked a wise and intelligent disposition to eliminate and control this source of the disease by governmental assistance with a public sentiment indorsing the same. No State will reap the whirlwind more than New Hampshire, a distinctly dairy State, whose products, ever seeking a wider field of sale, will feel the force of deliberately maintaining within her herds the most dangerous infectious or contagious disease among bovines, a disease now known to affect almost every species, and the "white plague" of the whole earth.

Dr. Elmer Heaton Judkins, of New Paltz, N. Y., was married to Miss Jennie D. Auchmoody, of Highland, N. Y., on Wednesday, October 5th, at the residence of the bride's brother. Dr. Judkins is a graduate of the Ontario Veterinary College, class of '96.

NECROLOGY.

Thomas Giffen, M.R.C.V.S., died at his home, 217 West Fifty-eighth Street, New York City, in August, after a lingering illness. Deceased was a member of the U. S. V. M. A. and New York State Society, and at one time a member of the New York County Association.

John P. Messer, D.V.S., graduate of the American Veterinary College, class of '97, died at his home in New York City, September 1st, from fever contracted in the recent war against the Spanish.

LaForest E. Turner, D.V.S., formerly of New York City, but who had been holding a position in the Seventh Cavalry, U. S. A., died at Fort Grant, Arizona, September 21st, of congestion of the brain. Deceased was a graduate of the American Veterinary College, 1891.

Frederick William Turner, D.V.S., at 91 Lawrence Street, New York City, in September. Graduate of the American Veterinary College, class of '90, and a member of the U. S. V. M. A. and New York County Veterinary Medical Association.

William Machan, V.S., graduate of Ontario Veterinary College, class of '94, died at his home, 358 West Forty-eighth Street, New York City, October 11th, from meningitis, caused by the fall of a horse, crushing his skull. Deceased was a member of the New York State and New York County Veterinary Medical Associations.

E. Bovette, V.S., of Denver, Colorado, lost his life in October while fishing in one of the lakes some ten miles from that city. Dr. Bovette came of a family with numerous representatives in the veterinary profession. He enjoyed a lucrative practice in Denver; was active in the Colorado State Association and officiated as Veterinarian to the City Troop of Denver.

NEW PUBLICATIONS.

THE work of R. A. Pearson, B.S., assistant chief of the Dairy Division of the Department of Agriculture, has already attracted

much attention not only from those directly engaged in the dairy industry, but from many others whose alliance to these interests is less direct, but none the less important. The recent compilation and publication of *National and State Dairy Laws*, showing the progress, present status, and future needs in this direction, any of the greatest interest and importance alike to the dairyman and veterinarian. The salient points of all the laws of the several States are pointed out, and the most salutary provisions in the successful maintenance of this work are readily recognized. Those seeking legislation in these lines of work will find a useful guide in this report. The work of the author of this compilation—in the care and production of milk, the suggested lines of mutual work of boards of health, and those engaged in the dairy industry, and in many other aspects of this field of work—shows a deep interest, a broad conception of the situation; and what may be accomplished in a practical way on a commercial basis is never lost sight of. A similar compilation along the lines of an abstract of the various State laws relative to the control and eradication of contagious and infectious diseases of livestock would be very much appreciated.

SOME POINTS ABOUT THE MEETING AT OMAHA.

President Salmon was strongly averse to a definite period of office for the President, and urged its remaining open to the will and decision of the members.

Much is claimed, a great deal is hoped for, by those who urged a reduction of the dues to three dollars per year. A large increase of membership was promised, and a more prompt payment of dues assured. Time will tell how great the results.

Dr. R. R. Bell, of Brooklyn, N. Y., advocated greater facilities for clinical work and demonstrations.

The Committee on Diseases for the coming year will specially direct their investigations and prepare statistics of osteoporosis and rabies.

Dr. A. H. Baker, of Chicago, strongly advocated the election of Dr. Clement as President, and ably seconded the nomination.

Quite an interesting vote was recorded on the central vice-presidency, Dr. A. H. Baker, of Chicago, receiving twenty-two and Dr. John R. Mitchell, of Evansville, Ind., eighteen.

Those advocating an informal ballot did not wish to place their favorite candidates in nomination.

Prof. Law, in discussing the report of the Committee on Intelligence and Education, warmly complimented the tenor of the report on the course of education outlined by Chairman Pearson.

The very practical paper by Dr. R. R. Bell, on "Acute Indigestion of the Horse," was freely discussed by Drs. Whitbeck, Williams, Merillat, Cary, Nelson, Walrod, Clement, Nighbert, A. H. Baker, and C. C. Lyford.

President Clement, on taking the chair, was brief in his remarks, but deeply appreciative of the honor conferred upon him.

Secretary Stewart, on again renewing his devotions to the duties of that office, thanked the members for their assistance in the past.

The extent and outlines of the arytenoid cartilage was a hard bone of contention among those who were frequent operators on "Roarers."

AMONG THE COLLEGES.

The three graduates of the Western Veterinary College, located at Kansas City, Mo., were former students in the Ontario, Ohio Veterinary College (Cincinnati), and Kansas City Veterinary College.

Two free scholarships to each county in the State are allotted by the Ohio State University, Veterinary Department.

The Kansas City Veterinary College conducts a ladies' class in microscopy preparatory to the civil-service examinations for assistants in the meat-inspection department of the Bureau of Animal Industry.

The Grand Rapids Veterinary College opened with some ten students on October 11th, one of whom was a lady. The prospects for an additional number of students is quite promising. The school has planned to give special instruction in clinical work during the session, and a large amount of material has been engaged for surgical instruction in the various operations upon cryptorchids and other animals. The free clinics for the poor are reported as being taken advantage of to an unusual extent.

SOCIETY PROCEEDINGS.

A. V. M. A.

THE county organization of Greater New York has sent in a unanimous call for the Association to meet there in 1899. The State organization adjourned in September to meet in Ithaca in 1899, unless the national organization convenes in New York City, under which circumstances the State meeting will convene in the Metropolitan City. Editors Bell, of the *Review*, and Gill, of the *JOURNAL*, strongly urge the attractions of "Gotham."

The District of Columbia Veterinary Association has passed resolutions urging the Association to convene in the Capitol City, and other organizations of the city will take similar action in the interest of the movement.

Detroit, through her Convention City organization, sends a strong list of attractions why our organization should convene there in 1899. Are her veterinarians speaking through the city's official representatives?

MAINE VETERINARY MEDICAL ASSOCIATION.

THE regular meeting was held at the Elmwood House, Waterville, October 13th, at 7.30 P.M., President West in the chair. Present, Drs. West, Stevens, Jolly, Purcell, Freeman, Russell, and Salley. The minutes of the previous meeting were read and approved.

It was decided to make a strong effort to pass a veterinary registration bill this winter. Previous efforts at the passage of such a bill have failed for various reasons, the chief of which are a lack of coöperation of members of the Association and a misunderstanding of the object and real meaning of the bill. On motion of Dr. Stevens, seconded by Dr. Purcell, it was voted to instruct the Secretary to send a circular explanatory letter to the non-graduates practising in the State, together with a copy of the proposed bill. It is believed that there will be little opposition to this bill if it is well understood.

Dr. Stevens read a paper upon "Puerperal Septicæmia," which was very interesting, and considerable discussion followed.

Voted to adjourn to meet at Augusta in January.

I. L. SALLEY, D.V.S.,
Secretary.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF
PENNSYLVANIA.

THE first meeting of the year was held October 14th, at 8 o'clock. The Secretary, Mr. Jacobs, called the meeting to order, and Mr. Nolan was appointed Secretary *pro tem*. Mr. Hoopes was made critic. The names of Messrs. Kerns, Tallman, Mayer, Young, Bader, Walter, Watson, and Gililand were proposed and duly elected to membership.

The following gentlemen were elected as officers: Mr. Jacobs, President; Mr. Taylor, Vice-President; Mr. Hoopes, Treasurer; Mr. Nolan, Secre-

tary, and Mr. Hughes, Librarian. Executive Committee, Messrs. Kerns, Comman, Tallman, and Bader.

Meeting adjourned at 9.15 P.M.

Second meeting was held October 21st, at 8 o'clock. The Society was called to order by President Jacobs. Mr. Young was appointed critic. The names of Messrs. Powell, Dunn, and Shore were proposed and duly elected to membership.

Prof. Leonard Pearson then gave an interesting, likewise instructive, address on "The Conformation of the Horse."

A vote of thanks was extended to Prof. Pearson for his valuable address.

Meeting adjourned at 9.30 P.M.

Third meeting was held November 4th, at 8 o'clock. The Society was called to order by the President. Mr. Kerns was appointed critic. The names of Messrs. Colton, Woodward, Bender, Notton, and Willett were proposed and elected to membership.

Literary programme was as follows: A paper by Mr. Hoopes on "Male Animals in the Stud."

DEBATE. *Resolved*, That a veterinarian should not have his office at a livery-stable. *Affirmative*: Messrs. Cheney, Young, Walter. *Negative*: Messrs. Keiter, Hughes, Gilliland. The subject was ably handled by the gentlemen in the debate; likewise by the members in general. The negative side was victorious.

Meeting adjourned at 9.30 P.M.

L. A. NOLAN,
Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE regular monthly meeting of the Association was called to order at 8.45 P.M. on Wednesday, November 2, 1898, with the President, Dr. Robertson, in the chair. The following members responded to roll-call: Drs. Amling, Ackerman, Bell, J. S. Cattanaach, J. S. Cattanaach, Jr., Dickson, Ellis, Foy, Gill, Grenside, Hanson, MacKellar, O'Shea, Robertson, and Ryder (15). The minutes of previous meeting were read and approved.

Dr. Gill, Chairman of the Board of Censors, offered the following report: Charges have been preferred against Dr. J. S. Lamkin for violation of Article VII. of the Code of Ethics, he having connected himself with a livestock insurance company. On motion of Dr. Bell, seconded by Dr. Cattanaach, the chairman was requested to notify Dr. Lamkin to present himself to the Board of Censors at their next monthly meeting, to answer said charges; carried. Signed, Dr. Gill, chairman; Dr. Bell, Dr. Cattanaach, Dr. MacKellar. Moved and seconded that the report of the Board of Censors be accepted and placed on file; carried.

Dr. O'Shea, chairman of the Judiciary Committee, stated that although it was a little early in the season for legislative work, the committee had been advised that several bills at variance with our present State veterinary laws were on foot, but that the Judiciary Committee were on the alert to attack them when introduced.

Dr. Grenside read a very interesting and practical paper entitled "The Horse's Mouth," which was freely discussed, Drs. Bell, J. S. Cattanaach, and Ackerman leading in the discussion. Motion for a vote of thanks to

be tendered to Dr. Grenside for his paper was made by Dr. O'Shea; seconded; carried.

Dr. E. B. Ackerman read a paper entitled "*Municipal versus State Control of Tuberculosis.*" Dr. Ackerman's paper opened a field for discussion, which was led by Dr. Gill and participated in by Drs. Bell, Hanson and others. Moved and seconded that a vote of thanks be extended to Dr. Ackerman; carried.

Dr. Bell, chairman of Ways and Means Committee, reported that he had furnished two excellent papers for the present meeting, as was evidenced by their reading, and had one by Dr. Ryder promised for the December meeting, and would secure a second one from among the members. Moved and seconded, that the report be accepted; carried.

Moved and seconded, that a committee be appointed to draft resolutions on the death of our late member, Dr. Machan; amendment, that Dr. Robertson be included in that committee; carried. The President appointed the following committee to act in that capacity, Dr. H. D. Hanson, chairman, Dr. James L. Robertson, Dr. J. Elmer Ryder.

Under the head of new business, Dr. Gill raised the question of the American Veterinary Medical Association holding its next meeting in New York City. After some discussion it was regularly moved and seconded that the Secretary be instructed to notify the chairman of the executive committee of the national body that it was the sense of this meeting that the A. V. M. A. be invited to hold their next annual meeting in New York City. Moved, by Dr. Gill, that the vote be made unanimous; seconded; carried.

Moved by Dr. Hanson, that the Secretary, in conjunction with the Ways and Means Committee, get up a circular letter, to enthuse a full membership at the annual meeting, the yearly announcement of each member's indebtedness to the Association to accompany the letters; seconded; carried.

Moved and seconded, that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

OHIO STATE BOARD OF VETERINARY EXAMINERS.

A MEETING was called at the State House, Columbus, October 6th, 1898. All members present. After the usual routine reading and approval of the minutes of the last meeting the following motions prevailed and were passed by the Board. Moved by Dr. Probst, seconded by Dr. Wight, that certificates issued by the Pennsylvania State Board of Veterinary Medical Examiners be accepted upon the same terms as certificates of the Ohio Board are accepted by the Pennsylvania Board, and that notice be given by the respective boards of the acceptance of such certificates.

On motion by Dr. White, the certificate presented by one Dr. A. E. Cunningham, from the Pennsylvania Board, be accepted in lieu of an examination, and that a certificate be issued him by the Ohio Board. Beside the mere presentation of a certificate from the State of Pennsylvania, a letter from Dr. Hoskins, of the Pennsylvania Board, highly recommending Dr. Cunningham, was read by Dr. White.

As this was a meeting to consider prosecutions, it was moved by Drs.

Probst and White that when complaints are hereafter received by the Board that some person is illegally practising veterinary medicine and surgery in the State of Ohio, the Secretary of the Board demand of the informant proof of the charges, and, upon receipt of such proof, shall furnish the prosecuting attorney of the county in which such illegal practitioner resides with a copy of the charges, and request prosecution.

Just before adjournment, the newly appointed member of the Board, Dr. D. S. White, of the Ohio State University, Veterinary Department, was elected Secretary.

DAVID S. WHITE,
Secretary.

MISSOURI VALLEY VETERINARY ASSOCIATION.

THE seventeenth regular meeting of the Association convened in the lecture-hall of the Kansas City Veterinary College on the evening of October 5, 1898. President Bennett presided, and on roll-call the following members responded: Drs. S. E. Bennett, S. Stewart, J. H. Cock, B. F. Kaupp, J. C. Milnes, R. P. Steddom, S. L. Hunter, R. C. Moore, W. A. Heck, and Chas. Saunders. Visiting members of the profession were H. H. George, J. S. Buckley, and about twenty veterinary students. The customary disposition was made of the minutes of the previous meeting.

The Anti-vivisection Committee reported, and on motion the report was accepted and the committee discharged.

Dr. L. M. Klutts' request for associate membership was refused upon the grounds that the doctor had resigned a few years since when he was in arrears for dues; also that the letter-head upon which the request was written contained the cut of a horse, which is a violation of the Code of Ethics of this Association.

Within a few months several of our members have moved out of our territory. Dr. G. A. Johnson, transferred from Kansas City to Sioux City, Ia.; R. H. Harrison to Milwaukee, Wis., and Nelson S. Mayo to Storrs, Conn. Each of these gentlemen presented his resignation to the Association, and, being reported with clean accounts, on motion their resignations were accepted and they were placed upon our honorary list.

The Secretary reported collections very much improved, but there were several members still who were very slow in settling accounts. The usual amount of discussion of this subject was done, and, finally, instruction was given to the Secretary to notify each individual in arrears two years or more that unless his account be settled by the next regular meeting final action will be taken.

Dr. S. L. Hunter read a paper on "Army Practice," which was listened to with much interest. He added another chapter to the very thorough but much-needed airing of the condition of the army veterinarian.

Dr. J. C. Milnes responded to the theme, "The Reason Why," and described several outbreaks of anthrax in horses, relating the origin of such, and expressed his wonder why there are not more of such outbreaks, considering the unsanitary condition of many barns and stables. Then followed some spirited but good-natured criticisms of the author's theories of etiology and diagnosis. In defence, the author went carefully over the train of symptoms and postmortem lesions, and stated he had been in practice since 1878, and had seen much anthrax, and felt reasonably sure

of his diagnosis. Those who took the negative side of the question went into the bacteriological aspect of the disease and stated that even a microscopical examination will not always substantiate a suspicion. The listeners were impressed with the idea that we should guard our opinions in such cases until we are absolutely sure of our diagnosis, as there are so many factors to be considered that error is easily mistaken for truth.

Dr. B. F. Kaupp read a carefully prepared paper on "Calculi." He entered into detail of the formation and composition of calculi of all descriptions. The exhibition of a fine collection of calculi added much interest to the subject. Dr. Cock created considerable merriment by relating the story of the Irishman insisting that calculi are contagious. Dr. Hunter cited a case where a leather shoestring was extracted from the bladder of an old man; the patient was unable to explain how the queer structure came there.

Dr. Stewart's paper on "The Advantages of Active Membership in a Veterinary Association" was listened to in silent admiration. Not only was the subject-matter very practical and inspiring, but the euphonious expressions and rhetorical phrases were so pleasing that all present were sorry when he had finished. It is to be hoped that those who were fortunate enough to hear it were sufficiently enthused to resolve to do more association work in the future.

Then came case reports.

Dr. Moore reported an injury to a bull's penis, which became so bad that the animal was destroyed. The injury at first did not seem so bad, but gradually the adjacent parts became involved—swelling and sloughing till a very large cavity was left. No cause could be given, and snake-bite was suggested. The symptoms of snake-bite were thoroughly discussed. Dr. Moore also reported a case of what he thought to be "gangrenous dermatitis" in a horse. He had seen several cases of late years in his practice, all of which had proved fatal. This does not seem to be a common disease in this section, and but few of the members had seen anything like it.

One of the interesting features of the meeting was the exhibition of a new thermo-cautery, an invention of one of our own members. This invention has the advantage of being so simple that it can be pumped with the same hand which holds the instrument while at work, also the cost of the whole instrument is not more than five dollars.

The next meeting was voted to be held in St. Joseph, Mo.

W. A. HECK.
Secretary.

SEEN AND HEARD IN MANY PLACES.

THE announcement of the appointment of Dr. Rush Shippen Huidekoper as Chief Medical Director of the First Army Corps under Major-General Brooke, with the rank of lieutenant-colonel, has brought a keen thrill of satisfaction to many people in Philadelphia who know and admire him. He has made his home in

New York recently, under circumstances that are not entirely creditable to his native town of Philadelphia, and now that he has reached almost the pinnacle of his profession, there is a feeling of gratification among many who are glad to witness the spectacle of his distinguished preferment. His selection is due not merely to his knowledge of medicine, but to his standing as the leading veterinarian of America, and this statement contemplates no exception.

There are at least seven veterinary colleges and schools in this country—two in New York, one in Boston as an adjunct to Harvard University, one in Chicago, one in Minneapolis, one connected with Cornell University, and our own. Several of these can properly be demonstrated “diploma mills,” their curriculum being limited and their term of matriculation brief. The majority, however, can present their graduates with parchments that entitle them to high rank in what has become a high profession. But of all these our own college, while it is the youngest, has already reached the highest phase of development and presents a degree of efficiency that, when its brief existence is considered, is simply amazing. For this result credit is very largely due to Dr. Huidekoper, although—and this is said in no spirit of harsh criticism—his labors do not appear to have been fairly and fully appreciated. Contentions arose which caused him to resign, and the New York college quickly captured him.

Dr. Huidekoper was graduated from the Medical Department of the University of Pennsylvania and became a regular practitioner. He displayed an aptitude for the treatment of young children. This he ascribed to his long-time liking for the cure of animals. Did it ever occur to you that the cure of both animals and babies must necessarily be very much alike? They both speak in a tongue unknown to the attendant, and neither can make their wants intelligible or describe the character of their complaint. The result is the doctor must diagnose the case in hand from what he can observe. Surely that requires a profounder knowledge and a deeper acumen than is requisite in the medical men who tell us grown folks that they know all about our internal condition. But I’m forgetting about Huidekoper. He found the ranks of the medical profession overcrowded and the chance for elevation to a scientific pinnacle very remote. In veterinary surgery, however, he found a vast field almost untilled. He saw there a rare opportunity for the enthusiastic scientist, and he seized it. He determined to become proficient in that kindred branch of the medical profession.

He first went to the famous school of Alfort, France, the cradle of veterinary surgery, and after his graduation studied among the learned men of Berlin. When he returned home, discarding the offer of a professorship from Harvard University, he set vigorously to work to give his alma mater a veterinary department of which all good Philadelphians should be proud. Our University was willing to throw her protecting wing over the enterprise, but it would not expend one dollar to father it. In this dilemma the late J. B. Lippincott, the book publisher, and Joseph E. Gillingham, the lumber man, came to the rescue, the former contributing \$30,000 and the latter \$10,000. With this sum the handsome buildings in which the veterinary branch of the University has its location were erected. The grounds at Thirty-sixth and Pine Streets, which were donated by the city, occupy a space about two squares in extent. Even in their embryonic condition the buildings had a street frontage of over 250 feet, and comprised a commodious amphitheatre and museum, an anatomical or dissecting-room, a histological laboratory, a blacksmith shop with eight forges, a pharmaceutical laboratory, and several large stables for hospital purposes. The department's course of studies, which extends over three years, is rigid, comprehensive and exhaustive. It aims to give instruction, both theoretical and practical, in all branches pertaining to the scientific study of the elements of medicine, and the practical application of those elements to the domestic animals, in the preservation of their health, in their employment as useful aids to man, and in the diseases to which they are subject. In the second year the students are required to serve as aids in the hospital, and in the third year they are obliged to take charge of sick animals. This latter duty necessitates their taking turns at night watches, which require them to sleep in the buildings all night, except during the intervals when they are required to administer the proper medicine to some equine sufferer afflicted with the colic or some of the many other afflictions horses are subject to. To this institution, in its beginning, Dr. Huidekoper and his assistants gave tireless and unselfish attention.

The United States is far behind European countries in its recognition of the dignity and value of veterinary surgery. It is the only government in the world that does not in its army make a veterinary surgeon a commissioned officer. With us he cannot rise higher than a sergeancy, with a salary of \$75 a month. One of the latest commissions appointed by the government for the purchase of horses for the army comprised a captain and a lieutenant

of infantry and an officer of the commissary department. It did not even include a cavalry officer. Most folks think that the science of veterinary surgery concerns no matter of greater moment than the setting of a horse's broken leg. How ridiculous! As it is exemplified in our veterinary colleges it concerns every one of us intimately. One branch taught in the veterinary department of the University is termed zoötechnics, which is described in one of the official catalogues prepared by Dr. Huidekoper, when he was there, as including "the study of the laws of breeding and production of the domestic animal, heredity, race characteristics and individual impressions, the effect of climate, aliment, work, and the means to be employed in the selection and handling of animals to adapt them for the most economical profit, whether destined as motors, wool or milk-producers, or as articles of food." In other words, the science of veterinary surgery means instructing our sheep farmers in the best methods of wool production; it means the full utilization of horse labor; it means the prevention of pleuro-pneumonia, whereby millions of dollars are lost yearly to cattle-raisers, and the extermination of tuberculosis, whereby contaminated milk is given our children and actually kills thousands of them every year. Meaning all this, I am sure it means much and deserves substantial support.

Dr. Huidekoper once, in talking to the narrator, presented the importance of the work of the veterinary profession in a few striking words and figures. "In America," he said, "the advance in veterinary medicine has been far from keeping pace with our national reputation for energy and self-preservation. In 1806 Dr. Benjamin Rush, of the University of Pennsylvania, who had just been in Europe, and had seen the success of the institutions then a few decades old, wrote a letter to the Agricultural Society of Philadelphia and urged the importance of adding a veterinary department to the University. He called attention to the agricultural prospects of the country, and his letter was discussed before the society in 1807, but nothing practical was done. Our domestic animals have steadily increased in number and in value since that time. We had in 1852, horses, 5,000,000; cattle, 17,000,000; sheep, 22,000,000, swine, 30,000,000; value, \$600,000,000; and in 1883 we had in the United States, horses, 10,838,111; value, \$765,041,308; mules, 1,871,079.

In 1897 we had, horses, 14,364,667, valued at \$452,649,396, a decrease from 1883, when we had 16,206,802, valued at \$992,-225,185, a reduction in numbers and price, owing undoubtedly to

the introduction of trolley and other electric motors. In the same year we had of mules 2,215,054, valued at \$92,302,090, a reduction in number and value from the previous year, but not to a large extent; of milch cows we had 15,941,727, valued at \$360,239,993; of oxen and other cattle we had 30,508,408, valued at \$507,929,421, a decrease of 7,000,000 from 1892 in number, but not an equal decrease in value; of sheep we had 36,818,643, valued at \$67,020,942, a decrease of 11,000,000 from 1883 in number and a decrease in value of nearly \$60,000,000; of swine we had 40,600,276, valued at \$166,272,770, a decrease of 12,000,000 in number from 1892 and a decrease in value of about \$75,000,000. These figures are given you to show the enormous value to this country of exact veterinary knowledge; and to Dr. Huidekoper more than to almost any other man is due the elevation of this science from its despised rut in the days of the blacksmith farrier and the country horse-doctor. The day of these has gone by. The veterinarian has taken rank with the oculist, gynecologist, the aurist, the dental surgeon, the neurologist, and the other specialists who remove the ills and soothe the ailments of afflicted humanity. When a man such as Huidekoper receives preferment in these war times it serves as an offset to some of President McKinley's dude military appointments.—MEGARGEE, in *Philadelphia Times*, May 31, 1898.

ARMY DRIFT.

Every veterinarian in the Northwest should urge strongly the needs of the profession in our army, and a word to the Secretary of War direct, or through his Congressman, will not be amiss.

One of the experts sent to Tampa to investigate the existence of glanders hailed from New York State, and his chief occupation during the past two or three years was the selling of horse- and cattle-food, and doing the rural districts peddling soaking boots, which he hung as decorations to the bows of his carriage as he made his pilgrimages among the farmers.

Surely after so many years' service, and now an added experience and trials of a semi-tropical climate, should entitle several of our army veterinarians to retirement and a pension. Alas! because they are not commissioned, there is no such provision for them, save by virtue of legislation.

Huntsville, Ala., is now the centre of proposed movements of a number of our army colleagues who are daily expecting orders to embark for Cuba.

Shoulder-straps were in marked evidence at Tampa, and their wearers, clothed with arbitrary power, saw no danger in horses condemned for glanders drinking from the same troughs as those marked as free from the disease. Do you wonder at educated and trained men resigning?

Unsound horses, unadapted for the service, were purchased by hundreds by commissioned officers wholly ignorant of the question of the actual needs of those in the service.

There was no place for any one in the Army Veterinary Department but subservient tools to those who were profiting by the decorations that indicated power.

Distemper and glanders have claimed many victims among the horses and mules, and with an ignoring of every salutary sanitary law, competent veterinarians driven out of the service because their lack of authority making it impossible to avoid these results.

"Brothers—Phys. kinly remember me not to Disturbe my medicines"—a leading appointee's notice posted at his medicine supply closet while temporarily absent.

Regimental quartermasters would not accept the responsibility of taking veterinary supplies into the field. A report reached us that there was but one veterinarian at Chickamauga or Tampa with anything approaching a surgical equipment. He became a borrowing centre for such trifles as needles and thread for the care of wounds and injuries. Will not the commission extend its inquiries anent the suffering of the quadruped division of our army service?

The humane societies of our land should join in one solemn, serious protest against the criminal neglect of those animals so essential to the rapid mobilization of our army and so potential in our victories at San Juan and Santiago. They deserve more merciful consideration.

Think of hundreds of valuable animals being sacrificed unto death by the external application of red tape.

Think of a so-called expert veterinarian arriving at Tampa for the purpose of saving some of the recklessly squandered money of our people, announcing his arrival and official mission as that of determining whether the Government's horses were affected with "bacillus malleus" or "tuberculosis."

Nearly all veterinary appointments at Southern posts of the regular army were in direct violation of the spirit of the law governing such selections, and in the face of the letter of the law, that all army veterinarians should be graduates of legally organized and recognized veterinary colleges. A number of those appointed possessed no degree whatever.

One of the most important appointments at the most critical juncture at Tampa was an obscure non-graduate with absolutely no practical knowledge of the work he was to do. Surely the salary-grabbers knew a good thing when they saw it, and politicians mended weak points in their political fences by securing these plums for their division heelers and shouters.

If the army veterinarians at our Southern points had only the rank of second lieutenant they would not have been overridden by the cavalry and quartermaster officers, and our people saddled with an enormous waste of money, unnecessary suffering of hundreds of animals, and death from neglect.

Veterinarians are willing to sustain every responsibility placed upon them as a profession when such a system of examination is inaugurated as that under the Civil Service Commission for the Department of Agriculture, but not when there is a complete disregard of every test as to fitness and partisan appointments are made by spoilsmen.

One branch of the cavalry located at Tampa received two hundred and fifty remounts; over one-half of these were sick with strangles, influenza, glanders. Tied on the same lines, watered from the same troughs—could there be aught else but serious results? Even the corrals, such as they were, providing some safeguards, were ignored by officers, in orders given for animals.

A failure upon the part of officers in power at Tampa and Jacksonville to accept competent veterinary advice, is largely the cause of the widespread existence of glanders at those posts.

Come got 3 mules out of my pen

Dr. _____

Wagonmaster for — Infantry.

A sample of the intelligence of one of the veterinary appointees in Florida in reporting to the Quartermaster-General's office.

Over eight thousand horses and mules at the Tampa corral for over a month without competent veterinary attention! The responsibility for this blunder, almost criminal in character, should be

investigated and severe punishment meted out to those responsible. The presence of glanders is an unnecessary danger to our livestock interests as well as to every army officer and soldier brought in contact with this dangerous pest of the equine species.

Political influence and pressure of those who seek preferment on other lines than merit, at a critical hour has pervaded the veterinary service sought for at our Southern army posts, and ignorance and hesitation when and how to act are now adding to the terrible losses among the horses and mules. How long is this condition to continue?

A profession that has demonstrated its worth and efficiency through a proper recognition in the Department of Agriculture is demoralized and palsied in our army department for want of a similar recognition with power to act. Criminal blundering seems to have been the order of the hour. We would like to hear from the Quartermaster-General's Department on this score. Let the Investigating Committee add this to their field of research as to who have so fearfully blundered.

An ignorant pretender among veterinarians was sent to Tampa to avoid being ordered to Cuba, and, as if to add to his utter helplessness, he was placed there without medicines, instruments, or assistants. His duty finally resolved itself into that of discriminating between the dead and living, and seeing that the former were dragged out.

Almost every appointment of veterinarians to our recent Southern army posts by the Quartermaster-General's office was through political influence and a part and parcel of the "infamous spoils system" that has degraded every branch of the public service where it prevails or has prevailed.

Tenure of office has no security under appointments gained by "political pull," as was learned by one of the veterinarians recently relieved from duty at Tampa and who claimed to have as his backer no less a personage than Mark Hanna.

Speed the outgoing, welcome the incoming, was the order of the day at Tampa about November 1st. The cry for retrenchment of expenses, by virtue of which several veterinarians were relieved from duty, seems also to have marked the time for the arrival of several new appointees whose backers with political influence had finally landed their constituents in public office.

PERSONALS.

Dr. David S. White, of Columbus, the newly appointed member of the Ohio State Board of Veterinary Medical Examiners, has been elected Secretary of the board in that State. Dr. White fills the position of Dean of the Ohio State University, Veterinary Department.

Dr. S. G. Hendren, of York, Pa., is now visiting his family at Roxborough, Philadelphia. Dr. Hendren was temporarily attached to one of the engineer corps of the army.

Drs. Felber and Esterling, graduates of the Veterinary Department of the University of Pennsylvania, class of 1895, were visitors to Philadelphia during the Peace Jubilee in October.

Dr. B. F. Minnick, of Columbia, Pa., was a visitor to the City of Brotherly Love during the Peace Jubilee in October.

Dr. J. C. McNeil, of Pittsburg, Pa., was a visitor to Philadelphia's Peace Jubilee in October, coming as an official of the "Smoky City." He was a guest of the city officials of Philadelphia.

Dr. W. H. Pethick holds the position of Dominion Government Veterinary Inspector for Prince Edward Island. He very strongly approves the change to the American Veterinary Medical Association, and has already become an applicant for association honors.

Dr. W. H. Wheeler, of Stamford, N. Y., finds his location a congenial one and is rapidly gaining a clientage in that field.

Dr. A. Mitchell, of Skaneateles Falls, N. Y., has just been mustered out from the battery of his district, having enlisted at Port Chester, N. Y., at the outbreak of the Hispano-American War.

Dr. H. W. Stedman, of Springfield, Mass., has recently located at Barton, Vermont.

Dr. E. S. Walmer, of Washington, D. C., and Dr. E. H. Landes, of Camden, N. J., were sent to the army posts in Florida early in October, to eliminate glanders and farcy from among the horses stationed there.

Dr. L. A. Reefer, of Wheeling, W. Va., was solicited by our Government to accept a position at Tampa and Porto Rico, but declined the offers sent.

Dr. Louis O. Lusson, of Ardmore, officiated as marshal of the ninth division of the Civic Day parade at the Peace Jubilee of Philadelphia, in October.

Dr. Albert E. Cunningham, of the class of 1898, Veterinary Department of the University of Pennsylvania, has opened a veterinary hospital at 215 Huntington Street, Cleveland, Ohio. Dr. Cunningham passed the Pennsylvania State Board of Veterinary Medical Examiners in June last, and received their license, and has now been granted a license by the Ohio State Board.

Dr. N. B. Rhodes, of Tampa, Fla., treated many of the officers' horses in his private hospital, because of lack of facilities being provided for by those charged with these duties. It was easier to ignore competent veterinary advice and drive it from the army service, lest some stubborn and conceited minor officer's power should be questioned or disciplined.

Dr. Leonard Pearson addressed the students' society at the Veterinary Department of the University of Pennsylvania, October 21, 1898, on the subject of "Conformation of the Horse."

Dr. M. J. Treacy, of the Eighth Cavalry, formerly of Ft. Meade, S. Dak., has been stationed at Huntsville, Ala., on waiting orders for probable transport to Cuba or Porto Rico.

Dr. J. C. Saile, of Passaic, has changed his location to Bloomfield, N. J.

Dr. A. J. Savage, of Colorado Springs, Col., by dint of becoming with many others a determined fire-fighter for many hours, succeeded in saving his plant from the great conflagration there in October.

Among those taking the Civil Service Examinations for the Bureau of Animal Industry at Philadelphia in October were to be noted Drs. Jas. Beatty, B. M. Underhill, and J. H. McNeall.

Prof. Leonard Pearson, of the Veterinary Department of the University of Pennsylvania, addressed the Farmers' Institute at Emporium, Pa., in October, on "Dairying in Denmark."

Secretary J. W. Petty, of the North Carolina Veterinary Medical Association, is just recovering from a long and serious illness.

Dr. J. C. Meyer, Jr., of Cincinnati, Ohio, was among the Sir Knights Templar at their triennial conclave at Pittsburg in October, and included a visit to Washington, D. C., Philadelphia, and Reading, Pa., before his return home.

Dr. Jas. W. Sallade, of Pottsville, Pa., has taken out letters patent upon a commercial product called "laundrine," and established a depot for its production and sale.

Dr. Edwin J. Castle, of Methuen, Mass., conducts a drug-store in connection with his practice.

Dr. S. S. Whitbeck, Decorah, Iowa, spends a portion of his time lecturing to the farmers' institutes throughout the State.

Dr. T. A. Bown, of Chariton, Iowa, has become largely interested in the shipment of horses to the Eastern markets.

Dr. J. A. Mitchell, one of the Indiana delegates and a close candidate for Central Vice-President, will lecture to the horseshoers of Evansville this winter.

Dr. Jos. Johnson, of the class of '98, Veterinary Department, University of Pennsylvania, recently located at West Chester, has succeeded to the practice of Dr. Hogg, of Kirkwood.

Dr. J. McBirney still continues at the head of the special bureau work in Page County, Iowa, investigating and directing the control of hog-cholera.

Dr. J. Greer, formerly of Colorado Springs, is now assistant to Dr. S. Bock, of Denver, Colorado.

Dr. F. W. Hunt, a graduate of the class of '88 of the American Veterinary College, is now located in Denver, Colorado.

Veterinarian James Murray, of Detroit, Michigan, enjoys the possession, also, of a degree in human medicine.

Dr. Richard W. Hewitt, of Bridgeton, N. J., has retired from the practice of veterinary science and turned his attention to commercial pursuits.

Dr. E. S. Muir, of Philadelphia, in connection with his practice, conducts the Kensington Veterinary Hospital.

Dr. T. W. Scott, formerly of Nashville, recently located at Clarksville, Tenn., where, in conjunction with a veterinary infirmary, he conducts a shoeing-forge.

Dr. G. Howard Davidson, of Millbrook, N. Y., has been re-elected Secretary of the National Association of Exhibitors of Livestock.

Dr. D. Ryder, formerly of Chambersburg, Pa., is now located at Tampa, Fla., under special employment of the Government in connection with the horses in the army department.

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RABIES, WITH A REPORT OF TWO RECENT OUTBREAKS.

BY A. B. KELLY, D.V.M.,
COHOES, N. Y.

(Concluded from page 747.)



APPENDIX.

REPORT OF TWO RECENT OUTBREAKS OF RABIES.

A. An Outbreak in Greenfield, Saratoga County.

ON June 15, 1897, Dr. T. S. Childs, of Saratoga Springs, was called to the farm of Mr. John Donnon, of Greenfield, Saratoga County, to see a three-year-old grade Jersey heifer which was acting strangely. Upon his arrival he found the patient almost helpless, lying on the floor of her stall. By carefully questioning the owner it was learned that the patient had been bitten by a dog on May 13, 1897, but had shown no signs of ill-health until June 14th, when she was noticed to look at the other cattle, fences, and trees; stamp her feet, paw, bellow, and refuse food and drink.

The next day I accompanied the veterinarian to the place, but we came to no conclusions, as the animal was in a state of complete paralysis, although the reflex action was present; the eyes were rolling wildly, and the victim was greatly emaciated; temperature 100° F.

After consulting the owner it was decided to dispose of the patient, so, on June 17th, we returned to the place and held a necropsy. Nothing in particular was revealed by the necropsy, except a few small tubercles in the mesenteric glands and lungs and a general congestion of all the mucosæ of the viscera; the brain

appeared normal, and the alimentary tract contained very little ingesta. The diagnosis was mesenteric tuberculosis; but, as there was still some doubt as to its correctness, the brain, a section of the spinal cord, a kidney, and sections of the lungs and mesentery were sent to Prof. V. A. Moore for diagnosis. There was some delay in the transportation, and on reaching the veterinary college they were so badly decomposed as to be useless for the desired purpose.

There was considerable controversy in the community as to the nature of the malady, the owner of the cattle and several of his friends believing it was rabies, while the owner of the assailant and the local veterinarian believed firmly that there was no rabies in the county. However, the case was reported to the Commissioner of Agriculture, at Albany, who detailed my brother, Dr. William H. Kelly, of Albany, to investigate it for the State.

On *June 22d* we visited Mr. Donnon's place first, and then proceeded to each farm the dog had visited, and, as a result, found that a man named Hart, who lived in Greenfield Centre, owned a shepherd dog that, on May 12th and 13th, ran through the country, acting very strangely, and had attacked three men and several animals. It appears that Mr. Hart formerly lived in Greenfield, but in December, 1895, moved to Greenfield Centre, a distance of about three miles. The dog was always very gentle and friendly, and occasionally returned to his old quarters and visited the neighbors. *May 12, 1897*, he left home and started for another visit, but, when going through Mr. Dean's pasture, he severely bit a fifteen-month-old grade Jersey heifer on the superior portion of the anterior face of the tibial region of the right hind leg, and then attacked Mr. Dean, who avoided a bite by the free use of a club. The dog then hurried on, and went to his old home and bit at the door, but the occupants of the house would not admit him, owing to his queer actions.

He then took the road and ran southward for nearly two miles, attacking every dog he met, and branched off through the fields to the southeast, going directly for Mr. Daniel's farm, where he had a fight with the latter's dog, which appears to be a half-brother to the rabid dog. It was also stated that he bit two hogs on this place, but the owner denied the assertion, and no scars could be found on the alleged victims, which remained perfectly well. After this last encounter he started for home and, as he went across lots most of the way, did not meet any person or animal; he remained home all night.

Early the next morning he bit Mr. Hart's son through his clothing, and started on another journey, going almost due eastward, arriving on the main road, just above Dr. Miller's house; then, starting southward, he met Mr. Donnon, who had known the dog for a long time; but as he had not heard of his strange actions, and did not notice anything queer about the animal, did not try to get out of the dog's way. The brute sprang at Mr. Donnon, grabbing him by his left wrist, but the old gentleman succeeded in freeing himself by choking the dog, but not until his wrist was severely lacerated. When the dog regained his strength he again proceeded southward and turned into Mr. Donnon's farm and bit nearly one-half of the left ear off from a large red cow, and then attacked a three-year-old grade Jersey heifer, lacerating the upper posterior portion of her udder and the inside of the right hind leg. The assailant then started southeast, through the fields, toward Saratoga Springs, but Mr. Hart had been informed of his strange actions, and started out with a horse and wagon to capture the brute. He met the dog near Saratoga and put him into his wagon, but not until he had been severely bitten on the arms and hands; on his arrival home he immediately killed him.

Fortunately for the community, but unfortunately for the authorities' rapid diagnosis, all the dogs bitten by this animal were killed, with one exception, and that was the last dog bitten, belonging to Mr. Daniels. This victim did not contract rabies, due to the fact that he had an exceedingly fine, heavy coat of hair, and that the assailant's teeth were cleansed during his series of fights just prior to this last attack. Mr. Donnon accepted the advice of a Saratoga physician, and on May 16th went to the Pasteur Institute in New York City, received a sixteen-day treatment, and has been in good health ever since.

As was previously stated, Mr. Donnon's heifer was the first animal to show any strange actions. On *July 1st* Mr. Dean reported that his heifer was acting the same as Mr. Donnon's did, so I went to his place and found the animal in a very excitable state. She was tied in a stall by a rope around the horns and, when alone, would stand quietly, with head lowered and eyes half closed; but should a man or an animal come near her she would froth at the mouth, open her eyes, which would have a wild appearance, prick up her ears, attack with her horns, and bite at the rope; temperature 101° F. There were hay and green food in her manger, and she was frequently offered water, once in my presence, but absolutely refused both; patient much emaciated. The wounds

were tender, manipulation of them causing increased excitement. The owner was requested to turn her out into a lot adjoining the barn, and the victim at once began to paw, bellow, get up and down, attack the bystanders, and hook at the fence. The salivation was very abundant, and there was a faulty coördination of the muscular movement. A small dog was put in the pasture, and the patient immediately raised her tail, lowered her head for attack, gave a bellow, and started for the canine, chasing him completely out of the pasture.

I stated that it was the most like rabies I ever saw. The next day Dr. Childs, his student, Dr. Kelly, and myself visited the place and found the same condition as on the previous day; but the local veterinarian, being skeptical about the presence of rabies, suggested indigestion, accompanied by foreign bodies in the mouth. Therefore the mouth and larynx were thoroughly searched and the patient treated for indigestion, although no hope of recovery was entertained by the owner or Dr. Kelly. The patient gradually grew worse, the paralysis being more marked daily, and early in the morning of July 5th she died in convulsions.

The brain and a section of the spinal cord were removed and sent in a clean glass jar, containing glycerin, to Prof. V. A. Moore, who received them on July 7th and inoculated two rabbits (Nos. 43 and 44), subdurally, with a suspension of the suspected materials in sterilized water.

These animals remained well until July 29th, when No. 44 was noticed to be partially paralyzed at 7 A.M.; a sharp, loud noise would cause convulsive movements of the head. No. 43 was nervous, but otherwise normal. 10 A.M. No. 44 completely paralyzed; No. 43 partially paralyzed. 5 P.M. No. 44 completely paralyzed; No. 43 better than in the morning.

July 30th. No. 44 found dead in the morning. No. 43 partially paralyzed; had convulsive twitchings when disturbed.

31st. No. 43 completely paralyzed; remained so during day.

August 1st. No. 43 found dead in the morning.

As this was positive proof of the presence of rabies, Prof. Moore sent in his report to that effect. However, there was considerable controversy as to the accuracy of the test, and it went so far that one of the local papers published a long article (author unknown), stating that there was no rabies in the county, and that Mr. Dean was simply scared and starved his heifer to death. This article was contradicted the next week by Dr. Kelly, and the result of Prof. Moore's investigation published.

Neither Mr. Hart nor his family would believe that their dog had rabies, and neither he nor his son paid any particular attention to their wounds; simply kept them cleansed and bandaged until healed. On July 19th Mr. Hart was taken sick, but as he was subject to attacks of catarrh of the stomach he thought little of this attack; but he did not receive the usual relief from the regular remedies, so, on July 21st, he called in his family physician, who at once started to treat him for his old complaint. However, he kept growing worse, had spasms of the glottis, refused food and drink, was very constipated, and died early in the morning of July 22d. The family still scorned the idea of rabies, and the physician, at an interview, said that the man died from gastric catarrh, but also acknowledged that he had never seen a case and did not know the exact nature of rabies. Mr. Hart's son remained well. It was very hard to get this family to talk on the subject, and nothing definite could be learned concerning the man's actions, symptoms, or treatment other than that stated above.

Mr. Daniel's dog showed no ill-health up to this time, but was ordered shut up for six weeks, and has remained well up to the time of writing (April, 1898).

Mr. Donnon's second cow did not contract the disease. No other cases were reported.

B. An Outbreak of Rabies in Chatham, N. Y.

On August 15, 1897, a portion of the residents of Chatham, N. Y., were somewhat alarmed over the presence and actions of a strange dog. He was a large black and white dog, with curly hair, and was first noticed in the lower part of the village, running about aimlessly, and did not seem to have perfect control of his hind limbs.

When passing Mr. S. P. Allen's farm the dog attacked a brood-mare in the pasture, but failed in his attempt to bite her. During the afternoon he visited the premises of Mrs. Emily Hurd, and bit her dog, a valuable dashhound, which was playing in the yard. He next bit a fox-terrier belonging to Mr. John Mickle, and immediately afterward bit a bulldog, the property of E. Refenburgh. He next proceeded to Mr. W. H. Barrett's place, and fought with his six-months'-old St. Bernard pup. Mr. Barrett had heard of the assailant's strange actions and accordingly chained his pup to a kennel. All these victims lived in the village, and each one was lacerated principally on the nose.

Continuing his journey, he strolled about two miles southeast of the village, and sprang at the head of a brood-mare owned by Mr. James Doyle, Jr., which was being pastured near the road. The next day it was noticed that she was quite severely bitten on the head and forequarters.

August 16th. The same dog was noticed about one and one-half miles further down the same road, in the vicinity of the farms owned by Mr. H. C. Pierson and Mr. John Quirk. He was seen to enter the pastures of each place, but it could not be determined just how many animals he bit. About noon of the same day he was back to the village, chased and bit an English-setter bitch belonging to Dr. H. B. Ambler, and then entered Mr. Elmer Hunt's yard and bit his little dog which was tied to a kennel.

After this attack he returned to the vicinity of Central Square and continued his queer actions, running first in one direction and then in another. Suddenly he uttered a peculiar howl, raised his head high in the air, pulled his tail between his legs, ran up River Street, entered the house of Mr. Benjamin Wilson, and crouched under the table. The occupants were not pleased with their visitor, so they drove him out. During his exit he made a dash at the cat, but she evaded him by climbing a tree. Recognizing his failure to catch the cat, he ran around the house and found a bull-pup tied up. He severely lacerated the pup, disappeared, and was not heard of again that day. No one saw him leave the place, so concluded he had crawled away to die.

The next morning he was found fighting with Mr. C. Wood's shepherd dog; during the day he was recognized at other places on this same road, but no damage was reported until he reached Mr. Fred Wood's place, about three miles east from Chatham. He was lying nearly prostrated on the road near Mr. Wood's house, and the latter's little black-and-tan dog went to investigate. This aroused the rabid animal, and he bit the little dog and proceeded to the adjoining farm, owned by Mr. William Hartigan; had a quarrel with his dog in the door-yard, and went to the pasture, chased and bit at the cows, which in turn bellowed and chased him; but he succeeded in biting some of them.

This was evidently his last assault, for later in the day he was found lying in an old mill-dam in a paralyzed condition. The people threw stones at him, and, after a severe struggle, he dragged himself off into some underbrush, and was left to die. We have no record of his death at this place, but he was not seen

or heard of anywhere else, so it is safe to presume that paralysis set in and that he died there.

31st. Mr. Refenburgh's bull-dog was taken ill. Symptoms: Refused to eat; deglutition difficult; excessive salivation; paralysis of tongue and lower jaw; later, general paralysis set in, and he died in a few days. He did not bite any person or animal.

September 1st. John Mickle's fox-terrier was noticed to refuse his food, had trouble with his throat, excessive salivation, paralysis of tongue and lower jaw; was chloroformed.

5th. Mr. Hunt's dog refused his food and did not act as usual, so the owner unfastened him from the kennel and started to take him into the house, when he suddenly broke away and ran off, and was found the next day about one-half mile from home in a semi-comatose condition. He also had symptoms similar to those mentioned in the previous cases; dog chloroformed.

5th. One of Mr. Quirk's cows, a grade Jersey, was taken sick and supposed to be crazy. Symptoms: Refused food; salivated; yawned; bellowed; chased other cows; sexual excitement; wild expression of face; constipation; milk-secretion completely checked; would make ineffectual attempts to drink; would attack dogs, pigs, and chickens, but did not attack her attendant. Several abrasions, not thoroughly healed, were found on her nose, probably the sequel of the dog's bite. Her eyes were particularly bright and attentive; she appeared to be anxious about something. This condition continued, her voice becoming more hoarse, and she died three days later.

8th. Mr. Barrett's pup refused his food and acted strangely, biting at child's clothing; and, thinking it was due to the recent lack of freedom, the owner unchained the pup, which immediately ran away and was not heard of again for four days, when he was found near Garfield, a village thirty miles north of Chatham, in a paralyzed condition. While unfastening the pup, Mr. Barrett's arm was severely lacerated. Mr. Barrett had advertised for the dog, and the finder immediately notified him of the dog's helpless condition. In the meantime he tried to get the dog to take some milk, but he could not, and the victim died the following day. Dog did no damage.

10th. One of Mr. Hartigan's cows was taken sick. Symptoms were very similar to those exhibited by Mr. Quirk's cow. She died three days later, and owner held a postmortem and found impaction of the omasum.

13th. Another one of Mr. Hartigan's cows began to act the same

as the first one. Symptoms throughout the case were the same as those mentioned above. She gradually grew worse, and the owner gave her several drenches of oil to relieve the constipation. One time, when he was drenching the patient, she fell down and broke off a horn. Mr. Hartigan scratched his hands severely on the broken edges, and later put the same hand in her mouth.

This cow died on September 16th. This same day a third cow of Mr. Hartigan's showed symptoms very similar to the other two, except that they were very much milder. Mr. Hartigan began to get frightened when his third cow was taken sick, and he summoned Dr. H. B. Ambler, of Chatham, to his place and related the story to him. After a careful review of the history and examination of the sick cow, the veterinarian diagnosed rabies. Mr. Hartigan consulted his physician and went to Pasteur Institute in New York City, where he received a sixteen-day treatment.

Before Mr. Hartigan's departure Dr. Ambler held a necropsy on the cow that died the previous day, and gave him one-half of the brain to take to New York City with him, and sent the other half, in glycerin, to Prof. Moore, at the New York State Veterinary College.

17th. Mr. Wilson brought his bull-pup to Dr. Ambler's hospital for treatment, stating that he had acted strangely for several days. Symptoms: Would wander from home; paralysis of tongue and lower jaw; salivation; priapism; was anxious to drink, but was unable to swallow. Diagnosis, rabies. He kept the dog for observation. During the day the Commissioner of Agriculture, at Albany, was notified of the outbreak, and he sent Prof. V. A. Moore, of Ithaca, and Dr. William H. Kelly, of Albany, to investigate the case for the State. Accordingly, these men arrived in Chatham the next morning, and were met by Dr. Ambler, who assisted with the investigation. Shortly after their arrival the Wilson pup died in paralysis, and Prof. Moore held the autopsy, reserving the brain for examination. The committee then went to Mr. Hartigan's place and saw his cow, which was taken ill two days previously, but they decided to allow her to die of the disease. She died September 22d, but no autopsy was held, as Dr. Ambler was out of town.

During the local veterinarian's absence from town Mr. Doyle's brood-mare was affected. Symptoms: Great excitability; uneasiness; ran a great deal; whinnied; later got down and would bite at the ground and her forelegs. The owner was suspicious of rabies, so destroyed her.

24th. Mr. Pierson reported one of his cows as being affected. Patient was a nine-year-old grade Jersey, four months pregnant. The previous night she gave only a small quantity of milk, and the following morning she did not give any. Symptoms: Pulse 60; temperature 103° F.; bellows all the time; saliva running in streams out of each side of her mouth; yawns; refuses food and drink; stands for heifers to ride her; strains but only passes small quantities of feces.

25th. Symptoms about the same; she will grab at a stick; chase cats and chickens; appetite depraved, eating dirt, straw and paper in preference to wholesome foods; hyperæsthesia; imperfect coördination of muscular movement when she attempts to run.

26th. Symptoms about same, only more advanced. She falls down frequently and bellows loudly. At 2 P.M. she fell down for the last time. She was quite tympanitic; pulse 96; temperature 106.8° F.; respiration rapid; excessive salivation. She was completely covered with flies, but seemed to pay no attention to these, even when they crossed her cornea; strains frequently; opisthotonos present; no passage from bowels; cannot eat or drink anything; died at 6 P.M. The necropsy was held the next morning, and the brain sent to Prof. Moore, wrapped in a cloth which was saturated with a disinfectant.

Upon Mr. Hartigan's arrival at the Pasteur Institute, some guinea-pigs were inoculated with the suspected brain, and all died from rabies. Prof. Moore received the other half of the brain on September 19th, and inoculated rabbits Nos. 52 and 53, subdurally, with an emulsion of the brain in bouillon. Brain had been in glycerin for forty-eight hours. Rabbits remained well for fifteen and twenty-six days, respectively.

October 4th. Rabbit No. 53 was partially paralyzed.

5th. Rabbit No. 53 was found dead in morning.

12th. Rabbit No. 52 was partially paralyzed.

13th. Rabbit No. 52 was found dead in morning.

September 19th. He inoculated rabbit No. 50 subdurally, and rabbit No. 51 subcutaneously, with an emulsion of the brain from Mr. Wilson's dog.

October 8th. Rabbit No. 50 paralyzed in morning, and remained so all day; was found dead the following morning. Rabbit No. 51 did not die from the inoculation.

September 30th. He inoculated rabbit No. 54 subdurally, and rabbit No. 55 in the subcutaneous connective tissue of the neck,

with an emulsion of the brain from Mr. Pierson's cow. Rabbit No. 55 received two cubic centimetres of the emulsion.

October 16th. Rabbit No. 54 was partially paralyzed.

17th. Rabbit No. 54 was completely paralyzed.

18th. Rabbit No. 54 was found dead in the morning.

Rabbit No. 55 did not contract the disease.

9th. He inoculated rabbit No. 56 with an emulsion of the brain from rabbit No. 53.

18th. Rabbit No. 56 partially paralyzed.

19th. Rabbit No. 56 completely paralyzed.

20th. Rabbit No. 56 found dead in the morning.

As it has been positively proved that these three animals had rabies, it is safe to presume that all the other animals bitten by that dog, and developing similar symptoms, were affected with the same malady.

All the dogs known to be bitten by this original dog were killed, and no secondary outbreak occurred.

Up to the time of writing (April, 1898), no other cases have been reported in that vicinity.

All the victims were buried. No disinfectants were used in any case.

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THE ANTI-VIVISECTION AGITATION.

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(Concluded from page 720.)

WE come next to consider another main characteristic of anti-vivisection literature, namely, that of abusive language toward scientists.

In their use of language the anti-vivisectionists, as we might expect from their other methods of agitation, do not hesitate to stoop to the level of the ordinary street bully.

We find certain vivisectors called "inhuman devils," and these words are used as a title of an anti-vivisection circular. The circular contains a childish attempt at a justification of their use. A national petition blank, "for the total abolition of vivisection," gives the following definition:

"Vivisection is the cutting, poisoning, burning, freezing, smothering, and breaking the bones of live animals by medical scientists, and is done all over the world."

No honest or sincere person would be guilty of such an absurdly malicious misrepresentation of their opponents' position. One man says that vivisection "is useless, wicked, cruel, barbarous, and infamous," and this twaddle is repeated *ad nauseam*. Vivisectors are said to be in league with the devil, their knowledge is said to be "diabolical" and "diabolism." Anti-vivisectionists tell us that our schools are turning out "young devils." Our schools are called "hells of cruelty," and several other kinds of "hells." If our schools are "hells," it would follow as a corollary that

"young devils" would be turned out. Vivisectors are called "fiends," "hell-fiends," their work is said to be "fiendish." Vivisection, they say, is an "atrocious crime" for which there is no penalty too great, "certainly none that is not deserved."

We hardly need to remind ourselves that when the anti-vivisectionists went before the Massachusetts Legislature and Congress they were utterly unable to present a single fact to substantiate the charges made in their circulars. They could not instance a case of the abuse of vivisection. The whole fabric of anti-vivisection literature is simply the product of morbid imagination—simply "words, words, words."

We have now to consider another feature of anti-vivisection literature, namely, its sensationalism and its consequent demoralizing influence.

This is by far the most serious defect of the literature of anti-vivisectionists, a defect in comparison with which their ignorance, false statements, and abusive language sink into insignificance. Their ignorance only makes them the laughing-stock, as they are, of sensible people. Their false statements merely win over to their side a few uninformed persons. Their abusive language harms no one but themselves. But the greater number of their circulars and tracts, so highly sensational that no reputable periodical would publish them, and therefore published by themselves, threaten to become a veritable curse to the nation. These sensational accounts are all greatly exaggerated, and most of them are delusions of the imagination or confessedly taken from the testimony of janitors and from "horrid rumors concerning the practice of vivisection in the schools." Many pretended "revelations" are devoid of sense, reason, and sanity.

Furthermore, there is no demand for this sort of literature except in so far as the anti-vivisectionists have themselves created it. They have substantiated none of their charges, have never shown any reason why they should undertake the present crusade. Notwithstanding all this, anti-vivisectionists tell us that there are one hundred and two societies in this country and in Europe which are organized for the express purpose of circulating sensational literature on the subject of vivisection. This, we submit, is a blot upon the civilization of our age.

Is it not enough that the newspapers of the land give us the sickening details of every murder, suicide, and accident; that countless thousands of detective stories and the like are circulated all over the country? Are we in need of more such stuff? Nor

should we forget the ape-like imitative nature of man. No suicide is committed but it has a goodly crop of imitators; no murder done but some one duplicates it. Newspaper men do not justify themselves on moral grounds, much less do they set up the childish claim of the anti-vivisectionists that they are carrying on a moral crusade against vice. Newspaper editors tell us that they have to write sensational material in order to compete with other papers. It is a question of dollars and cents with them. The anti-vivisectionists, however, do not have even that excuse. They have deliberately founded societies and despatched their sensation-hunters to various parts of this country and even to Europe. They have solicited money from various unsophisticated persons as a means of publishing their brainsickly accounts.

The anti-vivisectionists have left no stone unturned in their search after startling sensations. They not only prowl about various laboratories with morbid curiosity, but they read the publications of physiological laboratories with the hope of finding something sufficiently exciting for one of their circulars. They are unable to appreciate the work of a physiologist, and cannot understand physiological literature. They simply select those sentences which, to a diseased imagination, savor of the sensational, deliberately omitting the setting of the sentences quoted, and then publish these statements with innumerable additions, exaggerations, and material of their own manufacture. This is the sort of literature with which the anti-vivisectionists are corrupting the youth of the country.

Scientific publications are written for scientists, not for imbeciles, children, and quack-doctors, nor even for the general public.

The people for whom these publications are intended bring to their perusal an understanding of the subject and an honest purpose of reading them for the scientific information which they contain. These publications are of extreme usefulness; are, indeed, necessary to the scientific worker. Physicians, also, must know and have publications on various medical matters which no sane man would think of publishing broadcast in popular tracts.

Publications on experimental physiology are of a very technical nature, and are unintelligible even to the ordinary scientist, except he be a specialist in this field. Anti-vivisectionists tell us that all that is necessary to appreciate this literature is a slight acquaintance with physiological terms. Impenetrable ignorance cannot appreciate its own darkness.

In the sensational accounts of the anti-vivisectionists we have

abundant evidence of mental pathology, interesting material for the specialist in nerve-diseases. Their pages are filled with various suggestions as to the criminal possibilities of vivisection. Such ideas never entered the brain of a vivisector or any sound brain, and would never have been thought of had it not been for certain brainsick anti-vivisectionists. These delusions of mental obliquity (falsehoods, they would be called in the case of responsible persons) are printed privately and circulated throughout the country in countless numbers. Various absurd cruelties are imputed to vivisectors. Anti-vivisectionists are putting this morbid literature into the hands of the youth. The effect is already shown in various criminal practices among boys who have simply carried out the suggestions contained in the anti-vivisectionist circulars. The anti-vivisectionists, however, are not content with merely suggesting to our youth various crimes which would otherwise not have occurred to anyone, but whenever a boy has acted upon their suggestion they have in each case ferreted out the whole affair and published it in their circulars with all the nauseating details and with all the other characteristically anti-vivisectionist embellishments. Such are the experiments which the anti-vivisectionists are trying on the youth of our country. Such are what they are pleased to call their "experiments on human patients." And yet, to quote from one of their tracts, we see these people "mingling socially with their fellows, but described in Holy Writ as 'whited sepulchres, which, indeed, appear beautiful outwardly, but within are full of dead men's bones and all uncleanness.'" To such insane lengths does this unholy passion for sensations extend that men "who already have a reputation for this diabolical sport" have actually gone abroad to work up scandals for importation, and "with an effrontery that would shame the veriest mounteback they still delude the credulous public with the same old falsehoods." "It will not do to tamper with this vice" of corrupting the young. "Restriction is not enough. We do not attempt to mildly restrict thieves and highway assassins. The only hope is to stamp the whole practice as what it really is—an atrocious crime—and then make and enforce laws that will punish it. There can hardly be too strong a law, or too great severity of penalty, certainly none that is not deserved." I thank you, anti-vivisectionists, for teaching me those words.

A good illustration of the imbecility of anti-vivisectionists is given in their idea of a course in medicine. Vivisection would, of course, have no place in their school. Physiology, the most

important branch of medical work, could therefore be taught merely from books. We could show, also, by numerous quotations from their tracts that they are opposed to dissection. Moreover, the only medical school of which they seem to approve advertises in the following manner: "This school advocates a new and successful method of acquiring a medical education, and boldly proclaims itself the champion of the struggling yet would-be physician, and announces that any student who has attained a sufficient mastery of the art of healing to pass the searching examination of our institution is entitled to receive its diploma, even though all his knowledge has been attained by practice and by burning the midnight oil in the solitude of his own home. We have established a system of study which bears the same relation to medicine as the Chautauqua Association does to literature, by which the diligent (sic) student may intelligently progress as rapidly as his talent will allow without reference to any time-limit. Successfully establishing this idea has opened the way to a profession to many a brilliant mind whose environments were such that they would otherwise have been debarred from working in the field of medical science for the benefit of their fellow-men. Students can enter at any time; can receive instruction daytime or evening the year around. Private lectures given to those desiring to advance more rapidly toward graduation. Lectures (sic) and books can be sent to students taking the course by mail. Prompt and special attention given to this department of our work."

So far as we are informed, the department for removing corns and performing surgical operations by mail has not yet been established, but we do not doubt that out-patients can receive treatment by mail. In order to make clearer the meaning of the abstruse advertisement, we must translate it. The translation reads as follows: "This school advocates a new and patent method of acquiring certain medical formulæ; charlatan-like, proclaims itself the champion of the embryo quack, and announces that any person who has sufficiently mastered the black arts to pass our examination in those arts is entitled to receive our diploma, although he may be scarcely qualified for a butcher's apprentice, and although he may have acquired his modicum of knowledge by merely practising on poor unfortunate victims, experimenting on human patients, and by smoking cigarettes in the solitude of his own room. We have established a system of study which bears the same relation to medicine as faking does to legitimate business, by which the *diligent* person may progress in the science of quackery

as fast as his peculiar aptitude to this business permits. Successfully establishing this idea has opened the way to a fortune for many a clever fellow, who otherwise would have remained an ordinary fakir, and who would have been debarred from entering the field of medical charlatanism for the destruction of his fellow-men. Instruction at all hours day or night the year around. Special hints given to those desiring to do advanced work in medical trickery. *Lectures* and books sent in registered packages to those taking the course by mail."

But it is impossible to make a parody of such an advertisement. It is itself a parody. Nothing could be more bombastic and ludicrous. It is simply the method which is universally adopted by charlatanism. Moreover, by studying the literature of the anti-vivisectionists we find other interesting features in their idea of a medical course. We read: "For malaria, bacteria, contagion, etc., should be substituted mental causation, such as grief, fear, doubt, jealousy, envy, and greed." "Metaphysics should constitute the leading feature in courses of medical study." "Devils" is not the word for graduates from such a school. Bombast and ignorance, mixed in about equal proportions, as they would be in their graduates, produce charlatans. Yet this is for the anti-vivisectionists the standard of medical science. According to their idea, as set forth in their own tracts, a model physician would be one who never vivisected, never dissected; simply took a course by mail, and that with metaphysics as its main feature. With regard to such a medical school we have but one remark to add: We hope we may never be among the victims of their work in "experiments on human patients."

The anti-vivisectionists have sent out a circular¹ purporting to reproduce written "reports" from their supporters in various States. We here reproduce a few of them.

"We are told that thirty cats have been 'cut up' in a certain school in Wisconsin the past winter. Do the parents of the pupils know it, and not interfere? If so, they cannot be surprised when 'cut up' themselves in their old age. Of course not!"

"One girl told me that in her class at high school the teacher, a man (?) wanted to show the effect of atmospheric pressure in and on all things, and that he put a mouse in an air-receiver, exhausted all the air until the mouse swelled up with all the awful pressure inside of him, jumped up and down in vain attempts to grasp at

¹ "Biology" in the public schools. Illinois Anti-vivisection Society.

the receding air, and finally burst *all to pieces*. Is not this too horrible to believe?"

Evidently nothing is "too horrible" for an anti-vivisectionist to believe, and the more impossible the piece of gossip is the more firmly he believes it. The above-quoted bit of nonsense is, as anyone who ever saw such an experiment knows, absolutely impossible. But we have to remember that to the anti-vivisectionist the impossible is the absolute truth.

Complaints are made to me that in various Massachusetts cities and towns boys and girls are being taught in the public schools to *dissect male and female cats*. The italics are in the original. This statement is termed by the anti-vivisectionists a "revelation." The writer well remembers the time when this solemn announcement first appeared in the Boston papers, and what a roar of laughter it created among the students. Are the cats to be blamed for being "male and female?" Or does the witness, at this late hour, wish to reprove the Creator for creating animals male and female? Perhaps we are dealing with another occultist who could furnish astral cats without sexuality! The immorality of the whole affair does not lie in the fact of the cats being male and female, but in the suggestive indecency of the witness's remark. We have here simply a case of sexual psychopathy. It would never occur to a normal person to call attention to the sexuality of animals in such a lascivious manner. A man who cannot speak of the reproductive functions of animals without insinuating the indecency of those functions is most certainly to be pitied.

The contention of the anti-vivisectionists, that experimentation on animals has never resulted in the discovery of truth, is simply a denial of all that is known of physiology and infectious diseases, and is unworthy of notice.

After an unceasing agitation for over a quarter of a century, the anti-vivisectionists inform us that the "leading physicians" condemn vivisection. Several quotations from the statements of these "leading physicians" have been made above. The quotations give us an idea of the character of these "leading" minds. With all their urging, inducements, and exaggerated tales, the anti-vivisectionists have been able to obtain anti-scientific testimonials from five out of every thousand physicians in this country! This is interesting as showing the proportion of physicians who are as yet unacquainted with the work in experimental physiology. A few medical schools with correspondence courses, and with metaphysics as the chief study, should be able to swell the ranks of

those "leading physicians" who know nothing of experimental science. In order to become a "leading physician" one has merely to say that vivisection is "useless, wicked, cruel, barbarous, and infamous," whereupon he at once acquires the title "leading physician," and has the great pleasure of seeing a photograph of himself in the anti-vivisectionists' journals. No one could hit upon a cheaper advertising device or one more nearly on a level with the testimonial-and-advertisement scheme of patent-medicine concerns. In the world of genuine science and medicine a man can acquire fame only by honest and successful labor. In the circulars of the anti-vivisectionists that man is chief who has shown himself to be the most expert in the use of abusive epithets and the most successful in the anti-vivisectionists' favorite amusement of hunting after sensational matter.

Their latest agitation is an attempt to pass a law which will prevent the Bureau of Animal Industry from experimenting on the infectious diseases of animals. As usual, they have tried to hoodwink the public with a careful wording which seems to imply only a "restriction" of experimental work. But, as clearly shown by Dr. Charles W. Dabney, Jr., and Secretary Wilson, the effect of the bill, if passed, would be the complete prohibition of the most useful of the experiments of that bureau. Moreover, the anti-vivisectionists themselves admit that they wish this proposed legislation to be an "entering wedge," and from their own circulars we see that they are opposed to dissection as well as vivisection, and in every form. The time has come when the common-sense of the country should administer the proper rebuke to these violent agitators.

And now we must close the anti-vivisectionists' side of the case with the finding that they have "no case." Their monstrous heap of sensational rubbish is a mere mass of the products of ignorance, prejudice, morbid imagination, and the desire for notoriety. The anti-vivisectionists have given to the world overwhelming proof that they have not the slightest conception of the work of experimental science. Their statements are conclusive evidence that they even fail to distinguish between physiology and anatomy. But although the anti-vivisectionists continually parade their ignorance in print, they at the same time impudently proclaim themselves as final authorities in experimental science. Their methods of collecting sensational material would shame a newspaper fakir. The literature of the anti-vivisectionists is insanely morbid. Judging from the subject-matter and style, this literature seems to have

two motives. The chief motive is the desire, by means of sensational misrepresentations, to incite the uneducated classes into antagonism against modern science and legitimate medicine, and incidentally to exalt fanaticism and quackery. The second motive is to suggest certain unheard-of crimes to the ill-trained youth, in order that, when these suggestions have been carried out, they may relate these crimes as the results of the scientific method of investigators. Such methods on the part of the anti-vivisectionists have called forth the following remarks in *Nature*.¹

“The chief source of regret to us is that organizations like the Anti-vivisection Society, existing as they do upon the gullibility of an ill-informed public, should be permitted to publish their irresponsible accusations without fear of punishment. It would be better for humanity as well as science if such societies were not allowed to exist.”

THE HORSE'S MOUTH.²

BY FREDERIC C. GRENSIDE, V.S.

NEW YORK CITY.

UNDER this somewhat ambiguous title I do not purpose discussing the ordinary diseases of the mouth so fully treated of in text-books, but rather wish to direct your attention to this important organ of the horse, and view it to some extent from the practical horseman's standpoint.

It may be asked, why introduce a subject that comes within the province of the practical horseman at a meeting of veterinarians? In reply, I may say I think I can show that when the mouth is studied from the standpoint of an organ by which the horse is controlled and guided, conditions arise which cause the provinces of the practical horseman and veterinarian to overlap, and it would puzzle a constitutional lawyer to strike the dividing line.

While it is not absolutely necessary for a veterinarian to be a practical horseman under all circumstances (though it always is an advantage), conditions arise referable to the mouth in which it is a great assistance in aiding one to explain faults and troubles to our clients to which driving and riding horses are subject, and to suggest means for their relief.

¹ *Nature*, vol. lvi. p. 383.

² Read at the November meeting of the Veterinary Medical Association of New York County.

I think we will all agree that there is no point in connection with a horse that contributes so much to the pleasure, comfort, and safety of either riding or driving him as what might be called a responsive mouth, or one which obeys the slightest intimation promptly, from rider or driver, of restraint or guidance. A good mouth is to a large extent natural to a horse, so that some horses if properly handled can have their mouths made almost perfect. Such horses, as a rule, must have their heads so related to one another that they can bend their heads upon their necks with ease. If horses so formed have bad mouths it is usually the result of irrational handling, unless they happen to be unduly nervous or unintelligent animals.

Horses whose mouths are not good are very subject to soreness occasioned by injury from the bit, and the result of this soreness is manifested in a variety of ways.

In horses driven with curb-bits with a stiff mouthpiece the usual seat of injury is the tissue covering the branches of the lower jaw, at the points where the bit presses, which become bruised and excoriated, the bone underlying being sometimes injured even to the extent of a piece being chipped off. It is extraordinary how common this form of injury is in the city, especially amongst dealers' horses, and is by no means uncommon in a large proportion of other horses driven with curb-bits. Jointed or snaffle-bits seldom injure the branches of the lower jaw, but sometimes press the cheeks against the anterior molars, and abrade the inner surface of the cheeks, especially if these molars are rough.

Of the numerous ill-results of soreness and discomfort in connection with the mouth I may mention the following faults and troubles noticeable when riding or driving, viz.: crossing the jaws keeping the mouth more or less open, lolling the tongue, slobbering, tossing the head, carrying the head to one side or the other, pulling out in double harness or crowding in, going cornerwise, side-lining, not going into the bit, carrying the head unsteadily, pulling, boring down, balking, rearing, plunging, or rushing when starting off, especially out of the stable, restlessness in standing, breaking or going unsteadily in harness when going within the horse's speed, mixing, hitching or hopping either in front or behind, interfering, and last, but not least in importance, bridle-lameness. Certainly a number of other causes operate in producing the faults I have enumerated, but the most prolific one in the majority of instances is some discomfort in connection with the mouth.

As a rule, if these troubles are attributed to the mouth by

owners or coachman, the teeth are usually assigned as the cause, when in reality a bruise of the jaw, occasioned by the bit, is the trouble; but the anterior molars are rasped and rerasped, still the source of irritation (the bit) is used day after day, applied to the sore and tender spots.

If one considers for a moment one can realize the extreme sensitiveness of these sores, and the excruciating pain a horse must suffer when facing the bit in the morning, so that it is not astonishing that some horses hang back when first taken out, and if they are predisposed become balkers. The high-couraged horse, though he may hesitate at first, will, as soon as the part becomes numbed with pressure, or he becomes desperate with the pain he is suffering, begin to pull and show evidence of the discomfort he is suffering in the many ways already described, such as crossing the jaws, going with the mouth open, head to one side, etc. The irritable, sensitive horse is apt to manifest his pain in a more demonstrative manner, and we may find him going out of the stable with a rush, rear, or plunge, and if he continues to do this for a short time it soon becomes a confirmed habit and a very dangerous and disagreeable one.

Unfortunately, the condition is by no means uncommon, and could be easily prevented were it realized that it is due to soreness of the mouth, and rational measures adopted. Instead, however, of resting the mouth, by keeping the bit out of it, the horse is used day after day and the condition aggravated. If the excoriated parts heal, the cicatricial tissue filling the breach gives rise to an uneven surface, and the healed part remains unduly sensitive, and the pressure of the bit always causes evidence of discomfort. Some refer to the healed part as calloused and lacking in sensitiveness, and so account for some horses having a one-sided mouth, but personally I think it is the healed part that is the sensitive one.

Just here I may remark that I think this is a point that should not be ignored by the veterinarian in examining for soundness, and should at least be pointed out to his client, and its consequences explained; the more so, if any injury to the bone has ever taken place, for then a horse can never have a good mouth.

Outside of the discomfort and difficulty of driving a horse with a bad mouth, not to say the danger, especially in crowded streets, and the unsightliness of carriage it gives rise to, as in turning the head in and out, etc., a bad mouth is apt to produce irregularity of the gait and impaired control of the legs. What is called "hitching" or hopping off one leg, generally a hind one, although

due to weakness, too heavy a load, driving beyond speed, heavy shoes, etc., is not infrequently due to tenderness or soreness of the mouth, or placing the bit too high in the mouth. There is no such thing as a congenital "hitcher." It is always the result of bad management if allowed to become a habit. In high-couraged horses, whose mouths have become permanently injured from the bit, it is a difficult matter to overcome the habit; but if the mouth is allowed to heal thoroughly, the bit placed as low in it as the animal will stand and face it with a moderate degree of firmness, and not put his tongue over it, the fault will often be remedied.

The veterinarian needs to be on the alert for seeming lameness from a sore mouth, which is by no means uncommon. A horse will nod his head or hitch on a hind leg as rhythmically as if he were actually lame, and owners and coachmen often jump at the conclusion that such is the case, neglecting to take the precaution to jog a horse in hand before coming to the conclusion. In fact, it is very difficult to persuade people sometimes that a horse is not lame when he nods or hitches from a sore mouth. I have known horses to go apparently lame when driven with a certain kind of bit, that would go naturally with another kind, and I have also known horses to go seemingly lame when driven on one side in a pair, that would show nothing irregular when driven on the other side. One is more apt to have an experience of this kind with green horses that are being trained to a curb-bit than with those that are seasoned, unless their mouths have been permanently injured, and those driven in double harness are more apt to show it than those used in single harness.

In standing about show- and sale-rings one frequently hears horses condemned as being lame when it is due to soreness of the mouth, the tendency to which is increased by going around a small ring.

Mixing is usually attributed to want of balance from a proper distribution of weight in shoeing, and no doubt this is the case in some instances, but I think the cause should be more frequently referred to the mouth. You will generally find a horse that is inclined to mix has an unsteady mouth. He does not take the bit with the necessary firmness, and keeps retracting his tongue or putting his tongue over the bit so that the pressure from the bit comes on the branches of the lower jaw, which always gives rise to irritability and a want of confidence in the animal's manner of going.

The tendency to mix can usually be overcome by patient and

persevering effort to get the tongue accustomed to pressure. The bit should be placed well up in the mouth and be as comfortable as one as possible; sometimes a bit with a flexible-rubber mouth-piece or an arched stiff one; leaving the bit in the mouth in the stable for several hours daily, so as to get the tongue used to its pressure, so that it will remain quietly under a bit; apply gradually increasing pressure from day to day by means of a dumb jockey. Sometimes a bit with a post will remedy the trouble at once; but, as a rule, the former plan is the best.

Carelessness in the position in which the bit is placed in the mouth often results in injury to that organ. It is a point that a driver should exercise as much vigilance about, with almost as much care, as determining whether the reins are buckled to the bit. The lower the bit is placed in the mouth, within certain limits, the better, providing the horse will take it. With a moderate degree of firmness keep his head steady and his tongue under it. In those horses, however, which do not force the bit steadily, it is usually better to raise it in the mouth, and as the mouth becomes firmer lower it.

Among the exciting causes of "interfering," soreness of the mouth is by no means an uncommon one, and I have frequently observed it occurring even in well-broken horses, when a change of bit, particularly to a severe one, had produced some injury to the mouth. Fatigue, bad shoeing, rough and slippery roads, the swaying of a heavy two-wheeler are all exciting causes of "striking" or "brushing," but I am of the opinion that the awkwardness arising from an imperfectly made (not thoroughly bitted) mouth, with the incidental soreness, is an important factor.

ON CONTAGIOUS CEREBRO-SPINAL MENINGITIS OF HORSES.¹

BY PROF. DR. SCHNEIDEMÜHL,
KIEL.

As cerebro-spinal meningitis of horses has recently made its appearance in many portions of Germany, and especially in the northern parts of the province of Saxony, it may be of interest to refer to certain recent investigations bearing upon the trouble. Our first knowledge of this disease, both as an affection of man

¹ Centralblatt für Bakteriologie, June, 1898, xxiii., p. 892. Translated for the JOURNAL by Frederick D. Chester, Bacteriologist, Delaware College Agricultural Experiment Station, Newark, Delaware, October, 1898.

and animals, dates from some time in the present century. Besides horses, the disease is also known to attack sheep, goats, cattle, and dogs.

According to Large, the trouble existed in Long Island between 1847 and 1849; and, according to Liautard, in a sporadic or epidemic form in 1861 in New York, New Jersey, and Pennsylvania. In Germany the disease was noted about the middle of 1860, and a great epidemic of the same occurred in Egypt in 1876.

During the past decade repeated losses, especially among horses, have occurred in North America, Egypt, Russia, England, France, Austro-Hungary, Saxony, in the Prussian Saxony provinces, and in Silesia. In the year 1895 cerebro-spinal meningitis became especially prevalent in the kingdom of Saxony, where it was investigated by Siedamgratzky and Schlegel.

Respecting the etiology of the disease, it was for a long time thought that the trouble was not carried from animal to animal, but was more of a miasmatic origin. Siedamgratzky and Schlegel confirmed, by their observations of eight hundred cases, an earlier opinion that generally, although not exclusively, agricultural horses are more frequently attacked. No race of horses is, however, exempt; valuable coach-horses suffer in common with ordinary work-horses.

Although it is quite certain that there is some form of infecting virus causing the disease, nothing is yet known as to how this virus finds entrance; even the question of the transmission of the disease from animal to animal is not established. The exact period of incubation is also not known with any certainty, and may vary from weeks to months.

According to Siedamgratzky, the disease reaches its height during the winter and spring months, relaxing in summer; while, on the other hand, according to Sattler, from his observations in Southern New Jersey, the greater number of cases occurred during June and July, and with the approach of cold weather the trouble died out.

The disease appears to be less prevalent in the cities, where horses are more closely crowded than on farms, and hence the conclusion that the disease is not generally carried from animal to animal has some degree of logical support. On the other hand, it is claimed by Siedamgratzky that the specific infectious organism is capable of living, outside of the animal body, a saprophytic or facultative saprophytic existence, and by its multiplication under

these conditions it may produce a miasma, which now and then will infect susceptible animals.

Up to the present time nothing has been known as to the distribution, propagation, and mode of entrance of this supposed organism. Concerning the latter some recent observations have been made.

Thomasse held to the analogy between purulent cerebro-spinal meningitis in man and in horses, and which is supposed to be due to a diplococcus or some other organism. Trambusti demonstrated in a case of cerebro-spinal meningitis in a sheep the *diplococcus pneumoniae*.

Also, a buck-goat in the pathological laboratory of Florence, which had died of acute cerebro-spinal meningitis, was examined by the same author. In the same stall occupied by the latter was a she-goat, which also died later of the same disease. A child, which drank the milk of this last animal, also died with the same symptoms. An autopsy of the buck showed a sero-purulent infiltration of the meninges. In the exudate of the meninges and ventricles a diplococcus, united in chains of two, four, six, and eight elements, was found in considerable numbers. In the subpleural exudate, in the blood, and in the spleen they were much less abundant. The latter resembled Fraenkel's diplococcus, and stained in the ordinary way. Sections of the organ showed points of suppuration containing the diplococcus; also in the vessels of the pia mater the same organisms were found abundantly, either free or inclosed within the leucocytes. Also, in the vicinity of subpleural hemorrhagic areas, the diplococcus was found in groups. Cultures made from the cerebro-spinal exudate on agar or blood-serum appeared pure and showed, after twenty-four hours, small translucent, scarcely-visible colonies.

Subcutaneous injections of pure cultures, as well as of the heart-blood of a spontaneously dead goat, killed guinea-pigs and rabbits within twenty-four hours. In the peritoneal exudate and in the spleen the diplococcus was found in large numbers. From the above results Trambusti held to the view of an infectious cerebro-spinal meningitis whose virus was the same as that of the similar disease in man.

Siedamgratzky, in his bacteriological investigations, found a coccus, rarely a diplococcus, about 0.6μ in diameter. It grew best at 38°C ., and more slowly at the room-temperature, either in the presence or absence of air. It liquefied gelatin, was easily stained by the ordinary anilin colors, and not decolorized by Gram's method. The inoculation of the organism into horses showed in

the case of intravenous injections no pathological effects analogous to the disease; but subdural injections brought about an acute meningitis and encephalitis, from which lesions the coccus was isolated pure. Said coccus failed to grow in fluid, but grew well on coagulated sera; it was therefore held that normal blood was not a favorable pabulum for the organism.

The easy and relatively rapid growth of the coccus on different media and at relatively low temperatures renders probable the view of Siedamgratzky that the organism in question has a wide distribution and longevity in stables, where it may also find favorable conditions for its multiplication. Furthermore, the apparent connection of the disease with suspicious feed might here find an explanation, since such food may form a suitable pabulum for the development of the germ in question.

Johne, during a recent outbreak of spinal meningitis in Saxony, made a number of bacteriological examinations. In the case of seven horses he isolated from the cerebro-spinal fluid a small diplococcus, about 0.4 to 0.8 μ in diameter, and in a single case he also found the same organism in the brain substance and in another in the blood. The organism stained easily with the ordinary anilin colors, but best with the Ziel carbol-fuchsin solution. Morphologically the diplococcus was characterized as the coffee-bean form; it occurred, however, now and then, as tetrads, and again as chains of two to six elements, with the line of fission of the diplococci coincident with the longer axis of the chains. In fresh material they were commonly surrounded by a capsule. Rarely was the organism found in the lymphoid or endothelial cells. This organism, according to Jager, as shown by preparations and cultures, seemed to be identical with the organism isolated in 1887 by Weichselbaum from cerebro-spinal meningitis in man, and named by him *diplococcus intracellularis*.

Inoculations made with the latter organism by Johnne caused, in the case of intraperitoneal injections, the death of guinea-pigs in thirty-six hours with symptoms of toxæmia. Equally pathogenic was it in intraspinal injections into two goats. One of these died in thirty-six hours with symptoms of palsy, the other died after nine days with the typical picture of spinal meningitis. The autopsy showed in the last case fibro-purulent leptomeningitis, purulent ependymitis, and fibro-purulent spinal meningitis of the cervical cord. In the exudate in both cases the characteristic diplococcus was found in large numbers, as well as in the dorsal and lumbar cord.

A horse which was injected with this *diplococcus intracellularis* in the subdural space of the dorsal cord, in the region of the neck, became ill with typical clinical symptoms of apparently advanced cerebro-spinal meningitis. Three weeks after the above injection these symptoms had not disappeared. In the case of a second horse inoculated in like manner, but in which the greater part of the virus flowed back, and also in the case of another horse which had received an intravenous injection, there appeared in three to four days only slight cerebral symptoms.

Johns therefore claims that in the above diplococcus he has found the specific cause of cerebro-spinal meningitis in horses. Whether this last organism is identical with the ones discovered by Siedamgratzky and Schlegel further investigations must show.

With reference to the clinical symptoms, Siedamgratzky and Schlegel noted as constant a disturbance of the activity of the muscles of the neck and those concerned in chewing and swallowing; setting of the mouth; imperfect chewing; loss of the ability to seize hold of the feed; and, above all, loss of the power to effect suitable voluntary movements of the body.

With the disturbance of the activity of the muscles of the neck one notices a tonic and tense condition of the neck and an upward straining of the latter, the stag-neck (*Hirschbals*), simulating the conditions in tetanus. In endeavoring artificially to bend or move the neck the creature will frequently fall down and roll over.

As a rule, the disturbance in the powers of locomotion, as well as those of the coördination of the powers of equilibrium, are noticeable from the beginning. The animal stands with extended feet, and in walking staggers and often falls forward. It will then lie unconscious on the ground, making now and then spasmodic swimming movements.

The body temperature generally remains between 39° to 39.5° C. The pulse may be quite normal or somewhat accelerated.

The general symptoms are characterized by a more or less strong blunting of the senses, cramp, partial paralysis of the muscles of the head and neck, difficulty of movement, and disturbance of the equilibrium. The course of the disease is generally somewhat slow. The phenomena accelerate during the first week, when the trouble remains, with marked remission or disturbances, leading generally in the course of ten to eighteen days, with increasing palsy, to death.

Recovery takes place very slowly and is often followed by after-effects.

The mortality amounts, from the latest figures, to 76 to 80 per cent., and complete recovery takes place in only about 13 per cent. of the cases.

The anatomical picture, according to Siedamgratzky, shows a serous leptomeningitis which affects the brain and upper part of the cervical cord. In the brain the pia mater is strongly congested. Ramifying red areas occur at the base of the brain and in the medulla, disappearing backward.

As a rule, the cord in the vicinity of the second and third vertebræ is strongly reddened and now and then has a gelatinous consistency. The convolutions, especially near the base, are flattened and more or less filled with a serous fluid. In the white substance of the brain one often finds slight capillary hemorrhage, and some œdema. Most marked is the alteration of the pons and the medulla, extending to the region of the second and third vertebra. The appearances of the other organs show nothing characteristic.

Johne, in the observation of seven horses, found in the dead animals no lesion of cerebro-spinal meningitis or other inflammatory condition of the brain and spinal marrow, but only a venous engorgement with slight hemorrhage. The membranes of the brain appeared smooth and glistening, with only now and then a diffuse opacity of the latter. The anatomical changes showed rather the picture of a venous engorgement, but not a characteristic inflammatory hyperæmia. In all cases he noted in the spinal subdural and subarachnoid spaces, as well as in the ventricles of the brain, the presence of more or less (up to 150 c.c.) of a watery fluid, containing generally less than 1 per cent. of albumin. This, Johnne considers to be a transudate and not a true exudate. Only in one case did he find in the brain substance and in the convolutions small reddish-yellow foci. Johnne found in his examinations no anatomical lesions especially characteristic of the disease, death taking place from excessive weakness of the heart or by suffocation (Erstickung).

The author holds the disease to be due to a toxin which acts upon the central nervous system. The toxins he holds to be the specific products of the organism found in the subdural, subarachnoid spaces, and partly in the substance of the brain and spinal cord. The existing watery transudation he claims to be the result of the venous engorgement and of the effect of the toxins on the endothelium of the bloodvessels and lymphatics. Will not, therefore, the name cerebro-spinal meningitis from a comparative pathological standpoint have to fall? asks Johnne. It is admitted that

the disease in horses has clinically an evident similarity with the same disease in man, and also appears to stand etiologically in a certain relation to it, but from the standpoint of pathological anatomy it is not identical with it. In the disease in man there exists a specific inflammatory condition plus the toxæmia; in the case of horses only the toxæmia is evident.

To these statements of Johne it might be said that also in light cases in man the inflammatory lesions also fail; on the other hand, from the observations of others, it cannot be denied that acute cases of cerebro-spinal meningitis in horses are accompanied by evident inflammatory lesions of the brain and spinal cord.

Moreover, Johne himself shows how with pure cultures of the *diplococcus intracellularis equi* injected into goats he was able to produce lesions in the brain and spinal cord—*i.e.*, purulent leptomeningitis and fibro-purulent meningitis which were quite similar to the same lesions in man.

WOUNDS OF THE HEART NOT ALWAYS FATAL. A case was reported by Rehn, to the German Surgical Society, of a young man who was stabbed with a knife in the left chest. On the fourth day after the stabbing, the patient being moribund, an operation was decided upon. Incision was made into the fourth intercostal space and, the pericardium being exposed, a large clot was found in the pericardium, and an incised wound of 1.5 centimetre in length was found in the right ventricle. Three silk sutures were introduced into the opening, and the patient, after undergoing an attack of purulent pleurisy, made a good recovery. —*Therapeutic Notes*, P. D. & Co.

The possible extent of the spread of disease by the animals about us is still a matter of conjecture only. While it is more than probable that consumption and other diseases are distributed by domestic animals, good reason has been found for believing that the plague was introduced into Calcutta by rats, and, while mosquitoes probably inoculate the blood with disease germs, it now appears that flies may carry death in other ways. The last-named suggestion comes from Mid-Surrey. Two deaths from ptomain poisoning were attributed by the coroner's jury to eating lamb which was apparently sound and good, but which had been placed in a larder containing putrid tongue, and, as the two were not in proximity, the analyst believes that flies conveyed the poison from the tongue to the lamb. The obvious moral is that flies should be kept from larders and meat stores.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS, PH.D.,
PRINCETON, N. J.

ANEMONE NEMOROSA (grove anemone), according to the investigations of Prof. G. Müller and his assistant, C. Krause, is not a poisonous plant. This is contrary to the view of Haubner, Dammann, Fröhner, Arnold, Tereg, and Robert. The investigations of Prof. Müller were made upon a horse, a cow, two goats, three dogs, and several rabbits. In no case did anemone nemorosa cause any disturbance in digestion, diarrhoea, or diminish the appetite. The principal effect consists in an irritation of the kidneys, which, however, does not lead to inflammation, but only increases the quantity of urine, which becomes specifically thinner. In the dog, after taking fresh plants or the sap which has been pressed, the urine assumes a yellowish-red coloration due not to bloody matter, but to the coloring matter of the grove anemone. The plant affects further the milk-glands, causing congestion of the same, and to a moderate degree, blood in the milk, which has the odor and taste of the plant, and is not fit for use. A distillation of the plant causes local irritation. Applied subcutaneously, it causes inflammation, but never suppuration. The increase of urine also occurs when it is thus applied, but no effect can be traced on the milk-glands. Dry plants and the roots exert no visible influence on the animal.—*Thierärztliches Centralblatt*, June 1, 1898.

TETANUS THERAPEUTICS.—Nocard, as is generally known, uses his antitetanus serum in all operations and wounds which are likely to superinduce lockjaw. Nevertheless, his serum has been used as a remedy for tetanus which had already set in. In the *Veterinary Record*, the recovery of a mule which had been seized with lockjaw, after castration, is reported. The animal received two drachms of serum after thirty-six hours, again after forty-eight hours, and on the sixth day another injection of one drachm.—*Idem*.

APPLICATION OF MEDICINE IN PULVERIZED FORM TO THE ORGANS OF RESPIRATION.—Official veterinarian Neubarth, in

Zullichau, has constructed a "duster," by means of which he applies medicine in pulverized form (usually dermatol, with a small percentage of iodoform) to the mucous membrane of the larynx and pharynx. The instrument is made of metal, and consists of a bellows or blower, a chamber for the reception of the medicine, and a tube shaped like an olive at the end, about 35 cm. long and 5 mm. thick. The tube is shoved along the base of the nostril into the nose. The instrument can be had from Haubner, in Berlin. Price, 9.75 marks.—*Idem*.

TENACITY OF THE APHTHA-CONTAGION.—In connection with the already-published observations of Gotteswinter in regard to the contagiousness of offal which had lain seven months in the dung-pit, District Veterinarian Strebel publishes the following in the *Schweizer Archiv*. He, as well as many other Swiss veterinarians, had in the years 1872–1873 the opportunity to observe that a pretty large number of infected cattle, among them some that had not entirely recovered from the first attack, fell sick again with the aphtha-contagion within six to ten weeks. He and others confirm the statement that the same animals fell sick with the same contagion three different times in the same year. These facts show that the recovery once from the hoof- and mouth-disease gives the animal only little or no immunity at all against new attacks of this disease. Dr. Strebel had frequent opportunity to observe the tenacity of the virus of aphtha-contagion in the Alps. As soon as an infected herd had left the pastures the floors of the cow-sheds were customarily well cleansed, but not disinfected, and afterward the doors were left open, so that the stalls were thoroughly ventilated and the excrement and secretive materials which by chance still remained might be thoroughly dried out. If such stables were occupied before the end of three weeks with new cattle—young cattle—in a majority of cases they fell sick, never, however, if under the circumstances described, the stables were not occupied until after the end of a month. The thorough drying out of excrement pregnant with virus is therefore a good means of killing the aphtha-contagion virus. In the usual stables of the lower lands the virus can remain active for a long period where there is no or only superficial disinfection.—*Idem*.

INFECTION OF MAN WITH THE HOOF- AND MOUTH-DISEASE.—An attendant of the slaughter-house in Dresden was infected with hoof- and mouth-disease, while caring for an infected herd, in the

following manner: He was smoking at his work and touched his cigar with his dirty hands. He was afterward seized with a violent fever, and blisters appeared in his mouth and on his toes. The man was unable to work for a week. In the neighborhood of Zabern, further, two milkmaids were similarly afflicted after they had drunk from a milk-bucket the milk of cows which had not yet fully recovered from the aphtha-contagion.—*Idem*.

ETIOLOGY OF NETTLERASH IN SWINE.—Friedberger and Fröhner, Nocard and Leclainche distinguish nettlerash or nettle fever from erysipelas and swine-pest, characterizing it as an independent disease. For Leblanc, on the other hand, it has no pathological entity of its own. This condition, in his view, is certainly a symptomatic manifestation of erysipelas, perhaps of swine-pest. Jensen, also, is of the same opinion, and regards nettlerash as a weakened form of erysipelas; Konze also, is of the same opinion, and he has observed both diseases at the same time. Prietsch, in a herd of swine infected with erysipelas, observed symptoms of nettlerash. Ries has published a very interesting observation supporting Leblanc's view. In a hog which had died of subcutaneous erysipelas he found, on postmortem examination, very marked symptoms of inflammation on the valve of the heart. Four weeks before the same hog had been sick with nettlerash. The second hog, after it had likewise shown symptoms of nettlerash, continued to walk unsteadily and died seven weeks after the appearance of the eruption. The autopsy showed lesions of the mitral—endocarditis.—*Idem*.

TRICHOSIS ON THE TONGUE OF CATTLE (by Dr. Anacker).—The bases of the tongue mass is often inflammatorily irritated by the food which is only imperfectly chewed at the first mastication. At this point it is almost smooth in the middle, thinner than in other places, and somewhat flatly depressed; it is the point of least resistance. The mucous membrane becomes inflamed, infiltrated, and finally ulcerous. The ulcer is round, depressed, with its periphery swollen and hardened. Out of it spring whitish-yellow or brownish hair from $\frac{1}{2}$ to 1 cm. in length, more or less crowded together or standing in bundles; at times the hairs are found in a transverse ulcerous split in the mucous membrane. That it is here a question of real hairs has been proved microscopically by the author. The whole process is accompanied often, by suffering, shown in chewing and biting. According to common report, this

pain decreases when the hairs are cut off, and increases again with their growth. If trichosis of the tongue interferes with eating, it is of importance for the veterinarian, and he should never neglect to take out the tongue and examine it carefully. A cautious, slow taking up of hard foods, frequent changing of the food bolus in the mouth, spitting and a final dropping of the bolus, or refusal to take hard food are symptoms which point to the existence of trichosis. Healing is difficult, and can be brought about best by caustics. Anacker recommends: Argentum nitrate in solid form, concentrated solutions of acids, *e.g.*, acid hydrochlor., ac. nitric, ac. chromic and ac. picric. During this treatment with caustics only liquid and soft food should be given, such as bran mash and boiled carrots. Green hay should not be given until healing is nearly completed. The ulcer on the tongue is to be kept clean and disinfected until it heals. A sharp spoon-shaped instrument is well adapted for scaling out the ulcer and removing the hairs. During this operation a local anæsthetic, such as cocaine solution, can be applied to avoid causing too much pain.—*Idem*.

TO STOP THE FLOW OF BLOOD.—A new means for stopping the flow of blood was recommended a short time ago to the Society of Hospitals in Paris by Paul Carnot. The same is the well-known product gelatin. In a solution of common salt enough gelatin is dissolved to make a 5 to 10 per cent. solution. It is then sterilized twice by putting into a steam-bath for a quarter of an hour. An antiseptic, such as carbol solution, can be added if desirable. At the ordinary temperature it becomes a solid mass, and must be liquefied over boiling water immediately before using. In internal hemorrhages, if the source is accessible, a small sterilized wad of cotton thoroughly saturated with gelatin can be introduced. The solution can also be squirted in with a syringe or applied upon a strip of gauze. In cases of bleeding at the nose the nasal muscles should first be cleansed with warm water. The gelatin solution can then be applied with a small syringe, and then the saturated wad of cotton can be introduced. Care must be taken not to apply the solution too hot, as its effect is greatly decreased by heat.—*Idem*.

A CONTRIBUTION TO THE QUESTION OF TUBERCULIN INJECTION IN CATTLE.—At a recent meeting of the Agricultural Society in Rendsburg, Germany, Professor Ostertag, of Berlin, read a paper on this subject from which the following is taken: Slaughter-

house statistics, which twenty-five years ago showed only 3 to 5 per cent. of the cattle afflicted with tuberculosis, now show 10 to 40 per cent. This number, however, is even exceeded by those which are afforded by tuberculin injections. In large cattle herds even 50 per cent. and over have reacted. With such a spread of the disease the profits of cattle-raising must have sensibly diminished. If, for the purpose of exterminating the disease, all cattle were tested and those sold which reacted it would be a practical impossibility to carry it out. For that reason the method advocated by Bang in Copenhagen is the simplest and most practical, because it works toward the end in the most guarded manner. Bang concludes from his investigations that there can be no objection to breeding cattle which have been found to be tuberculous by the tuberculin-test because by far the greater majority of tuberculous cows produce healthy calves. The calves must be fed only on boiled milk and kept in special stalls where they do not come in contact with tuberculous animals. The breeder should not be afraid of finding a large percentage of tuberculous animals among his herds, for this is the case with every breeder who has introduced imported cattle for breeding purposes.

His fears, also, on account of the impossibility to sell the milk are ungrounded, because it has been scientifically demonstrated that only the milk of such tuberculous cows as have already grown very thin, or which suffer from tuberculosis of the udder, is injurious to health. On the other hand, the milk of cows which have merely reacted on the tuberculin test is not to be regarded as dangerous. Finally, the sale of animals that have reacted is a point at which many breeders take umbrage, since they believe that such animals can only be sold at a great loss. This is not the case, however, since tuberculous processes may exist for years in an animal without spreading perceptibly.—*Idem.*

THE MICROBE OF AFRICAN CATTLE PLAGUE. Dr. Kolbe, assistant to Koch, believes that the microbe which causes the South African cattle plague is so minute as to probably be beyond the visual range of the most powerful microscope. Koch's investigations of the disease, extending over nearly two years, failed to detect the presence of a specific microbe that could have caused the disease. Nevertheless, Koch claims that he can greatly lessen the ravages of the disease by the use of his protective serum.

SELECTIONS.

STATE EXAMINATION OF MILK FOR TUBERCULOSIS.

DR. FLORINCE O. DONOHUE, of Syracuse, reviewed what had been done in this direction, more especially by New York State, which, though the pioneer worker in this field, was to-day by no means in advance of other States. He said that of all the animals that are susceptible to tubercular infection, the cow is most to be dreaded by man, as cow's milk is consumed by infants and sick persons whose digestion is so impaired that they fall a ready prey to the tubercle bacillus. Tubercle bacilli can always be found in milk from a cow having a tuberculous udder, and they are sometimes detected in milk from animals whose udders are free from the disease. A sufficient impetus to this much-needed work of inspecting the herds and destroying the tuberculous animals can be found in the statistics of the State Board of Health, which show that over 12,000 deaths in the State are caused annually by tuberculosis. Like other reforms, the first step was beset with difficulties, but the "tuberculosis act," passed in 1892, gave the board authority to inspect all cattle in the State and destroy those found to be tuberculous. The interference with dairy interests and the pecuniary loss sustained by the owners of condemned cattle soon started an opposition, so that the work was brought to a halt. The law is still operative in New York State, and the commissioners are drawing their salaries, but the lack of adequate appropriation has kept the work practically at a standstill for the past two years. As soon as the board became convinced of the diagnostic value and the harmlessness of the tuberculin-test, it was made use of freely, and it has been abundantly proved a great advance on mere dependence on physical signs. In the course of a year and a half 22,000 head of cattle were inspected and 700 destroyed. Most of this work was done in the Hudson River district. In most cases it was possible to trace the disease from herd to herd, and no breed of cattle appeared to be exempt from the ravages of tuberculosis. Tuberculosis in the cow is, as a rule, a chronic disease, and, consequently, animals afflicted with it may yield a fair milk for a considerable time. The fact that milk is practically the sole article of diet of artificially-fed infants, in conjunction with the distribution of the tuberculous lesions in childhood, has aroused

the suspicion that tuberculous milk is the source of infection in such children.

Dr. Hiram A. Pooler, of New York, said that he had observed a difference between the milk from cows properly fed and that from those kept on brewers' feed, and he has also noted that tuberculosis is more prevalent in districts where cattle are given such unwholesome food. As a result of his arguments in this direction before the Legislature a law was enacted in 1883 prohibiting the use of such unwholesome food for cattle.

Dr. H. O. Marcy, of Boston, spoke of the interesting experiments that had been recently conducted with a view to eliminating pathogenic bacteria from milk by a process known as refrigeration. The milk is agitated while it is freezing, and this process of ice-crystallization is kept up for several hours. The product is almost free from objectionable bacteria, and, as it contains only about 7 per cent. of water, it is a good deal thicker than cream. It is not at all improbable that in the near future it will be possible to so perfect this process, and carry it out on a commercial scale, that solidified milk will become an ordinary article of commerce, just like butter. From what is known of refrigerated milk, as at present prepared, its keeping qualities are excellent.

Dr. A. T. Van Vranken thought an important link in the evidence adduced regarding the danger to the human race from tuberculous cattle is missing, unless it has been proved that there is a distinct relation between bovine and human tuberculosis in the same localities.

Dr. S. A. Knopf, of New York, said he has become a convert to the view that the chief channel of infection in the human subject is the digestive tract.

Dr. Donohue, in closing the discussion, said that while bovine tuberculosis has been found to be exceedingly prevalent in the eastern part of the State, it is comparatively rare in the western part. Reasoning from analogy, with the evidence furnished by experiments repeatedly made on animals, the missing link referred to by one speaker has been supplied.—*Society Proceedings, New York State Medical Association, in the Philadelphia Medical Journal*, October 29, 1898.

LONG, President of the Board of Agriculture, believes that the veterinary profession can do a great deal toward forwarding the movement for diminishing tuberculosis apart from any step that it might be necessary for the Government to take. The Govern-

ment should provide tuberculin at a comparatively small cost and pay a fee for its employment, in order to secure properly qualified veterinary surgeons to carry it out. A proper application of such measures would eradicate tuberculosis in cattle, and indirectly to a great extent in man.—*Ibid.*

WISE gives some general hygienic directions for the avoidance of tuberculosis, viz., careful selection of a properly situated dwelling upon which plenty of sunlight falls, which is elevated, but not windswept, and, particularly, one that is not damp. The furnishings should be light, and, when feasible, washable. Servants should not be allowed to “dust,” but should wipe furniture after dampening it, and the carpets should be dampened and then cleaned with a sweeper. Breathing should be through the nose; the clothing should be loose, moderately light, but warm. Sufficient exercise should be taken, and a proper diet should be prescribed. The expectoration should be sterilized. Milk and meats should be chosen with great care, excluding, if possible, tuberculous infection. The final point is of importance. It is pointed out that numerous animals used as pets, as well as several domestic animals, are susceptible to tuberculosis, and it is particularly insisted that, among these, canaries and others are frequent subjects of tuberculosis.—*Ibid.*

VARIATION IN THE STRENGTH OF CRUDE DRUGS.—The following variation in the alkaloidal strength of crude drugs bought in the open market by a large firm of manufacturing chemists and analyzed by them is here given: Calabar bean: physostigmine found to vary from 0.16 to 0.3 per cent. Cantharides: cantharidine found to vary from 1 to 4 per cent. Cinchona, calisaya: total alkaloids found to vary from 3.5 to 10 per cent. Colchicum root: colchicine found to vary from 0.3 to 0.6 per cent. Hyoscyamus: hyoscyamine found to vary from 0.7 to 13 per cent. Male fern: filicic acid found to vary from 0.22 to 0.65 per cent. Nux vomica: brucine and strychnine found to vary from 2.5 to 3.5 per cent.—*Therapeutic Notes*, P. D. & Co.

VITALITY OF TYPHOID BACILLUS.—From recent investigations, it has been ascertained that the bacillus of typhoid fever will live and retain all of the characteristic virulence for a period of three months when kept in a dry condition.

THERAPEUTIC NOTES.

UNDER THE DIRECTION OF W. J. MARTIN, M.D.C.,
KANKAKEE, ILL.

BIARIUM CHLORIDE.—At the last meeting of the Illinois State Veterinary Society the treatment of the various forms of equine colic was thoroughly discussed. While there was a wide diversity of opinion among the members concerning the efficacy of the various drugs used in combating this disease, it seemed to be the opinion of nearly all those present that barium chloride, administered either by the mouth or intravenously, was a dangerous drug, one likely to produce serious systemic derangement if not actually fatal results.

SUCCUS CINERARIA MARITIMA FOR CATARACT.—*Cineraria maritima* is a plant indigenous to the Island of Trinidad, West Indies. The juice of this plant is again being used in the treatment of cataract in human practice. Judging from the favorable reports in current medical literature, this remedy is having astonishing success in removing cataract. According to the latest information concerning this drug's action, it is said that the juice does not appear to produce any irritability or inflammation; a slight burning sensation lasting for about two minutes, but which gradually passes away, follows its application. There is also more or less profuse lachrymal discharge, tinged with the coloring-matter of the liquid used.

The action of the drug consists in stimulation of the absorbents, a dissolution of the opaque matter in the crystalline lens or its capsule ensuing. As far as present experience has gone, the improvement is progressive and enduring. Two drops are instilled into the eye twice daily. The price of the drug is one dollar per drachm vial. The remedy might be used in veterinary practice with equally good results.

A MIXTURE consisting of equal parts of gum-camphor and carbolic acid crystals is of value in treating the troublesome "summer" or "bursatee" sores so common on the legs and feet of horses and mules during the summer months. The mixture is best applied with a small brush several times a day, the sores afterward covered with cotton-wool, and a bandage applied.

SALINE SOLUTION FOR BURNS.—Tomasoli, quoted in *Medical Record* of January 29, 1898, recommends the intravenous injection of a solution of sodium chloride and sodium bicarbonate to combat the fatal effects of extensive burns. In a series of experiments carried out by Tomasoli with ten dogs which were scalded by immersion in boiling water, but two of the animals died that had received the serum injection.

ARTIFICIAL BLOOD-SERUM FOR SUBCUTANEOUS OR INTRAVENOUS INJECTIONS.—R_x. Calcium chloride, grs. iv; potassium chloride, grs. xv; sodium chloride, ʒij et grs. xv; boiled or distilled water, ʒxxxv. M.

NEW CHEMICAL ORTHOGRAPHY.—The following changes in chemical spelling have been adopted by the Chemical Section of the American Association for the Advancement of Science: 1. Drop final *e* in names of chemicals ending in *ide*, and pronounce *id*, as, for instance, "chlorid," "bromid," "iodid." This avoids confusion with the terminal *ite*, as in "chlorite." Also write and pronounce carbid, hydrid, amilid, glycerid, etc.

2. Drop final *e* in names of elements and compounds ending in *ine*, writing chlorin for chlorine, glycerin for glycerine, antipyrin for antipyrine, codein for codeine, etc. This rule also embraces the alkaloids, which ought to be written without a final *e*.

3. Use the termination *ol* without *e*, and pronounce short in the case of specific chemical compounds, exclusively for alcohols, such as phenol, creosol, glycol, glycerol. The termination *ole* is pronounced long and is limited to preparations that are not alcohols, as indol; also in galenical preparations, like glycerole of starch.

4. In sulphur and all derivatives therefrom substitute "*f*" for "*ph*," as in *sulfur*. Many of the leading drug and chemical journals in the country have adopted the above method of writing and spelling chemical names.

MAYOL.—E. May, of Budapest, has introduced a preservative under the above name, which, according to Thaus (*Pharm. Centralbl.*) consists of ethyl and methyl alcohols, boric acid, ammonium, fluorid and glycerin. Meat painted with this solution will remain fresh for weeks, becoming coated with a dry crust.

A NEW REMEDY FOR TUBERCULOSIS.—At the meeting of the American Medical Association held recently in Denver, Dr.

J. B. Murphy, of Chicago, read a remarkable paper on a new method lately discovered by him for the cure of tuberculosis. Dr. Murphy's discovery is one of great simplicity, and, on this account, can be readily used by the private practitioner in his daily practice.

Dr. Murphy claims, and with every probability of truth, that by placing a lung affected with tuberculosis in a state of collapse (state of rest) cicatrization will take place around the diseased area of the lung. The method of performing this consists in injecting into the pleural cavity nitrogen gas under hydraulic pressure. This injection of nitrogen gas into the pleural cavity relieves the lung from the performance of all physiological activity which has a tendency to diminish the irritating cough and accompanying expectoration, which are so wearing upon the vital forces of a tubercular patient. It is to this freedom from cough that Dr. Murphy attributes the curative method of his treatment. After the period of rest, and when cicatrization of the diseased areas of the lung have taken place, the lung can again be placed in a state of physiological activity by simply removing by aspiration with a trocar the nitrogen gas from the lung. Dr. Murphy claims that in five cases of advanced tuberculosis treated by this method all were cured.

This method of treating tuberculosis is, at the present time, being given an extensive trial in the Chicago hospitals, and it remains to be seen whether this innovation will stand the crucial test or be destined to add another disappointment to the many that have endeavored to find a cure for this dread scourge of the human species.

ACTIVE CONSTITUENTS OF DIGITALIS.—Digitalis contains four active physiological principles, namely, digitalin, digitoxin, digitalein, and digitonin. The effect of digitalin is that of a powerful cardiac stimulant, increasing the flow of blood and also acting as a stimulant to the vasomotor centres. The action of digitalein and digitoxin are the same as digitalin, with the exception that they do not stimulate the vasomotor centres.

PAINLESS ARSENICAL PASTE.—As an escharotic to malignant growths, such as epithelial cancer, fungoid growths, etc., the following paste may be used with decided benefit: *R.*—Arsenic, g. 1; orthoform, g. 1; alcohol, g. 75; water, g. 75. *M.* The strength of this preparation may be increased or decreased by increasing or decreasing the amount of the water and alcohol.

HYDROQUININE.—Hydroquinine, which is quinine containing an additional hydroxyl radical, is a virulent poison, producing convulsions and death in small doses. It is produced by treating an alcoholic solution of quinine with metallic sodium.

GRANULATED OPIUM FOR MAKING TINCTURE OF OPIUM.—Granulated opium is the best form of this drug to use in preparing tincture of opium. A tincture from this form of the drug was found to contain a higher per cent. of morphine (1.433) than from the various other forms of the drug used.

CORROSION OF SURGICAL INSTRUMENTS.—Surgical instruments are not corroded by corrosive sublimate solution, providing the solution has been first rendered alkaline by the addition of borax, sodium bicarbonate, or sodium benzoate.

COMMERCIAL PLANTS OF EUROPE.—About 4200 different species of plants are gathered and used in Europe for commercial and medicinal purposes.

PYRAMIDON.—This is a new antipyretic and analgesic, and, to a certain extent, may be used as a substitute for antipyrine, from which it is a derivative. It is a yellowish-white, crystalline powder, soluble in water in the proportion of 1 to 10, and is practically tasteless. The physiological action of pyramidon is similar to antipyrine, and the dose is about the same as of that drug, although a more lasting effect is claimed for pyramidon than for antipyrine.

TETANUS ANTITOXIN.—The use of this serum seems to be on the increase in human practice. Several cases of acute tetanus have been lately reported in the medical journals as being cured by its use. On the other hand, in veterinary practice the general consensus of opinion seems to be that this serum is of but little benefit either as a prophylactic or a curative agent.

ANTISTREPTOCOCCIC SERUM.—A case of puerperal fever in a woman has recently been cured by the use of this serum.

MEDICAL MEN AS MORPHINE EATERS.—In 1000 cases of chronic morphine eaters, medical men formed 40 per cent. of the number.

DEPARTMENT OF SURGERY.

BY L. A. MERILLAT, V.S.,
SECRETARY OF M'KILLIP VETERINARY COLLEGE, CHICAGO.

WITH THE COLLABORATION OF
W. E. A. WYMAN, M.D.V., V.S.,
MILWAUKEE, WIS.,

AND OTHERS.

ANÆSTHETICS.

General anæsthetics. Chloroform for the horse and ox, and ether for the dog and cat.

The administration of general anæsthetics is of special importance to the surgeon who undertakes capital operations and seeks the best results therefrom. Minor operations, however painful, are readily performed under topical anæsthesia, or even without its assistance; but prolonged, tedious, complicated, or delicate ones can, on the whole, be performed successfully only under the influence of general anæsthesia. The advantages of general anæsthetics in such operations are summarized as follows:

1. The field of operation can be more thoroughly and easily disinfected.
2. The incisions can be more accurately made.
3. Hemorrhage is more readily controlled.
4. Sutures, bandages—in fact, all dressings—are applied to better advantage.
5. The patient suffers no pain.
6. The seat of operation can be placed in the most advantageous position.
7. The procedure is a better exemplification of the surgeon's skill.

The disadvantages are confined, first, to the loss of time required for administration, and, secondly, to the danger of death. The former may be dismissed by adding that surgical anæsthesia can be produced in the domestic animals in from twenty to thirty seconds, with both ether and chloroform. Then the subsequent steps of the operation, uninterrupted by struggling, are so facilitated that the ten to fifteen minutes required for the patient to revive and regain his feet are not actually lost.

As to the danger of death, records of approximately 15,000 cases show but four deaths, all of which were traced, not to cardiac lesions, as might be expected, but to careless administration, especially in failing to observe the arrested respiration in time to apply restorative measures.

Physiological Action of Chloroform. The action of chloroform is central. The phenomena following its rapid introduction into the system through the aerial mucous membrane is doubtless due to a *transient* alteration of the nerve-cell protoplasm of the *cerebrum* and subsequently the *spinal centres*. The theory that it retards the elimination of CO_2 is no longer accepted. The horse and ox respond more readily and more effectually to chloroform inhalation than man because the area of absorbing-surface furnished by the aerial membrane is proportionately larger in the former. Chloroform is so volatile, has so large a surface through which to enter the circulation rapidly, and finally so small a structure to act upon, that its action in the horse and ox is almost instantaneous.

Its action on the nerve-centres immediately gives rise to the following generalized manifestations named in the order of their occurrence :

1. Relaxation of the voluntary muscles and blunted consciousness.
2. Total loss of consciousness.
3. Loss of sensibility and total loss of voluntary motion.
4. Loss of involuntary motion—death.

The very first effect of chloroform inhalation is violent struggling induced by the sense of suffocation, irritation of the upper air-passages, and the effort to resist a deep inspiration. This has been described as the *stimulating stage*—a name it scarcely deserves.

The study of anæsthesia in the domestic animal should begin with the first deep inspiration, because immediately after the first deep inspiration anæsthesia proper commences, and is readily recognized by a partial relaxation of the entire muscular system. The second and third inspirations place the voluntary muscles completely at rest. At this stage—the *narcotic*—the functions are only blunted, consciousness in only partially lost, reflex activity is only barely impaired, and the observable involuntary functions (circulation and respiration) are, if anything, exalted. At this period the animal is permitted to freely inhale two or three inspirations of pure air ; the symptoms already induced will almost immediately disappear. This phenomenon beautifully illustrates the *rapid* as well as the *transient* action of chloroform. On the other hand, two to four chloroform inhalations added to those

already given promptly bring the patient into complete unconsciousness, and total loss of reflex activity. The involuntary functions are only diminished. This is the condition to be sought in performing operations, and is designated the *surgical stage*.

The number of inspirations required to arrest the involuntary functions after the surgical stage varies considerably. Ten inspirations are often sufficient to arrest respiration while in some instances the patient succumbs only after twenty-five to thirty. The toxic effects are respiratory, rapidly followed by cardiac arrest. In no case in the horse are these effects reversed. Chloroform killed by respiratory arrest in all cases experimentally destroyed.

A very essential point to be remembered in chloroformization² is that the animal most susceptible is the least liable to succumb, while the one difficult to anæsthetize must be treated guardedly. The horse is only in rare cases difficult to anæsthetize, probably on account of the normal condition of the nervous system as compared with the "alcoholic" condition so common in the homo. It is a well-known fact that the drunkard can be anæsthetized only with the greatest danger, and in many case true surgical anæsthesia cannot be produced at all, but, instead, violent struggling ensues during the whole period of administration. Such poor results are never seen in the horse or ox, but, on the contrary, they all yield to its influence promptly and with a minimum degree of danger.

Administration. Chloroform should, if possible, be administered by an experienced assistant, who must be instructed to take no part or interest in the operation. He must adopt a method of administering large quantities of chloroform at each inspiration, and guard only over the patient's respirations and cornea. Too much stress must not even be placed upon the latter, because a patient may respond to a touch on the cornea when the respirations are already too low to stand another inspiration of chloroform. The cornea shows the condition of anæsthesia rather than the state of the involuntary functions. In other words, the cornea must be regarded as the proper and only guide as to whether or not the patient is ready for the surgeon's knife, while the respiration furnishes the protection to the patient's life. The surgeon may often command: "Administer more chloroform; the patient is resisting;" and the assistant will answer: "Doctor, I cannot; the respirations are faulty." This is a very common occurrence, and in such a case the operation must proceed without perfect anæsthesia. Under no circumstances must the assistant be influenced

by such requests, because the surgeon has usually been too much occupied with his work to have noted the patient's condition.

The veterinarian who has no assistant is under some disadvantages unless the operation can be completed in a few moments. In the latter instance the animal is perfectly anæsthetized and the operation completed before the patient offers much resistance. In the case of prolonged procedures the veterinarian who is so situated should call on his neighbor veterinarian for assistance. The surgeon who assists in casting and preparing a patient without experienced help, and must then administer an anæsthetic through a prolonged operation, is in no condition to perform the duties of a surgeon.

Mode of Administration. The animal is cast and securely tied in the costal position. A rubber sheet, one metre square, is placed under the head. A coarse sponge, ten to fifteen centimetres in diameter, is sprinkled with ninety cubic centimetres of chloroform. The administrator lies upon the patient's head, gathers the sheet over the nose, holds the under nostril shut with one hand and the sponge over the upper nostril with the other. The hand closing the under nostril is outside the sheet, and is also engaged in holding the sheet tightly over the maxillary region to exclude all air. The hand holding the sponge is, of course, inside the sheet, and is held a short distance from the nostril. Immediately the animal will struggle violently and utter somewhat unpleasant groans, but the weight of the body upon the poll and the under hand raising the nose from the floor will modify the struggles of the head to a suitable degree. This position must be maintained until the patient is forced to take a deep inspiration, after which the muscles will relax and the struggles become less violent. Two or three subsequent inhalations will produce complete relaxation, but the administrator must continue "on the offensive" during three or four more inspirations. During the latter the animal sinks rapidly into unconsciousness and insensibility. The cornea no longer promptly responds to the touch, and the respirations have become soft and shallow; in fact, the patient is ready for the operation.

The bedding, which has been disturbed by the struggles, is replaced under the head and the rubber sheet spread out anew, while the surgeon is exposing and preparing the seat of operation. The administrator now assumes a more comfortable position by sitting upon the poll (when the operation is not in that region), from which position the respirations can be studied both at the abdominal muscles and nostrils. An occasional touch to the cornea shows

the condition of anæsthesia. But I have always made it a point to withhold the chloroform as long as the patient offers no resistance to the operator, even when the cornea became sensitive. This I offer as a suggestion to the inexperienced, who are always more or less fearful of causing death. With the very first evidence of returning sensibility the sponge is again sprinkled with 15 or 20 c.c. and applied to the upper nostril, but the sheet is left spread out and air allowed to pass freely through the under nostril. If these simple methods are followed no deaths will ever occur.

Summary. Take no interest in the operation, but watch the patient's respirations.

2. Administer the chloroform rapidly and incessantly and without air, until the patient is completely anæsthetized; then administer only through one nostril, with air passing freely through the other.

3. Do not place too much stress upon the cornea.

4. Do not administer when the respirations are not deep and regular.

5. The heart will take care of itself.

Ether is quite as effectual in the dog and cat for general anæsthesia, but the time required to produce complete anæsthesia is somewhat longer than chloroform in the horse.

Topical Anæsthesia.

Topical anæsthesia is produced in veterinary practice chiefly by the use of cocaine and eucaine. The latter has nothing to recommend it over the former, in the horse. Cocaine in a 10 per cent. solution can be used with safety in all forms of superficial operations, and if the surgeon is mindful of the maximum dose no bad result is possible. Cocaine paralyzes all sensory nerves with which it comes in contact; others can do no more.

L. A. MERILLAT.

CHARLES WEISS, of Somerville, Mass., has petitioned the Boston Board of Aldermen for a license to slaughter horses for the domestic and foreign meat-trade, "the product to be sold or used for food, packed in barrels for export." There is no law against the practice, but this is the first time it has come up for legislative consideration. A large export trade in horsemeat is carried on outside of Massachusetts, the product going mainly to Germany, though its use is increasing in all Continental countries.

REPORTS OF CASES.

CLINICAL REMARKS ON CONTRACTION OF THE SOLE.¹

By S. J. J. HARGER, V.M.D.,
VETERINARY DEPARTMENT, UNIVERSITY OF PENNSYLVANIA.

CONTRACTION of the horny sole of the foot is a rather rare deformity, and is, without doubt, often diagnosed as some other obscure and chronic lameness of the foot.

The animal, a gray gelding, was brought to the veterinary hospital ten weeks ago as an out-patient. Had for a month been quite lame in the off, and slightly so in the near, foot.

Symptoms. The symptoms were well-defined. The lameness in the off foot was very marked and presented the characters of foot lameness, "supporting leg" lameness. Examination, outside of the foot, was negative. The deformity of the foot was characteristic. The surface of the wall, instead of being straight from above to below, was convex, especially toward the lower border; the lower edge of the wall appeared as if curled in toward the bottom of the foot, and the circumference of the wall directly at the plantar border was less than at a point a short distance above; the heels were contracted and curved inward. When the foot was lifted from the ground the sole was found to be very concave and pushed upward against the bottom of the foot. The wall and sole were thick and strong; the frog moderately developed. Pressure with the pincers over the centre of the sole produced slight pain; this is often absent. Sometimes there is pulsation of the digital artery and a blood-stained aspect of the white line.

Instead of affecting the entire foot, as in this case, the contraction may affect only certain regions of the wall and sole, especially the toe and laminæ.

The shrinkage of the wall being especially toward its lower border and the antero-posterior and lateral diameters of the bottom of the foot thus decreased, the sole can give way in only one direction—arching upward; hence the excessive concavity and the pain by the compression of the velvety tissue between the sole and the third phalanx. This fact suggests a very peculiar phenomenon in the anatomo-physiologic arrangement of the foot. The velvety tissue, although intimately packed in between the bottom of the

¹ Abstract of Clinical Lecture.

third phalanx and the horny sole, is not subjected to any appreciable pressure; that is, there is not sufficient downward pressure by the coffin-bone against the superior face of the sole to produce in the normal state pain from compression of this sensitive tissue. The essential means of attachment of the third phalanx, that which prevents this bone from being displaced downward in any appreciable degree, is the intimate union between the fleshy and the horny laminae on the inside of the wall; in other words, the third phalanx is firmly maintained in its position by its suspension from the inside of the wall.

It is true that the third phalanx slightly rotates downward, with the toe as the fulcrum, and that the sole is depressed, flattened when the animal's weight is on the foot, but the latter phenomenon, the lowering of the sole, is due essentially to the descending movements of the frog which, by its intimate union with the sole, drags the latter along. If the latter action is prevented by excessive thickness or concavity of the sole, the pressure of the shoe or a stone wedged in between the shoe and the frog, great pain and lameness quickly result. The frog, by its intimate contiguity with the bars and sole, is indirectly limited in its downward movements by the attachment of the periphery of the sole to the white line, as well as by its own attachment to the bars and heels. This mechanism also assists the suspension of the third phalanx in supporting the weight on the member.

Diagnosis. The diagnosis was based upon the concavity of the sole, the deformity of the wall, and pain on pressure on the centre of the sole. Contraction of the sole may be confounded with ulceration in the last inter-phalangeal articulation and with navicular disease. In the first case we must rely upon the absence of the characteristic deformity of the hoof described above. In navicular arthritis we would consider the history of the case, the intermittent and "warming out" lameness, absence of pulsation of the collateral artery of the cannon, and the differences between ordinary lateral contraction of the wall accompanying navicular disease and that of contraction of the sole. It is possible that the two conditions may exist simultaneously.

Prognosis. This is favorable, but some time is necessary to effect a recovery.

Treatment. This consists principally in hygiene of the foot and shoeing calculated to expand the wall and lower the sole. This is very essential.

In the animal in question the feet were soaked two or three times

weekly to render the horn soft, and a hoof ointment applied *as soon as the hoof was dry*.

The wall was pared down as much as was permissible, and the sole thinned as much as possible. The sole may be pared until it yields to the pressure of the finger.

A plain shoe, with bevelled toe, leather and oakum, was applied by the hospital farrier. The bearing surface of the shoe, instead of being horizontal, was slightly bevelled outward in order to assist in the expansion of the wall. The shoes were reset every two weeks.

At present the animal shows a trifling lameness in the right foot. He has been driven every day, and his ultimate recovery is expected. In fact, this would probably be the case now had the animal been returned more often and the treatment strictly carried out as recommended.

TREATMENT OF OPEN JOINT.¹

BY J. C. MICHENER, V.S.,
COLMAR, PA.

HAVING reported a few cases of open-joint treated with an anti-septic blister, I would like to add one more. On the 11th of last August, when a high-spirited horse belonging to Mr. A. C. Halde-man, of Line Lexington, was being bedded by his twelve-year-old son, the boy pricked the horse at the fetlock. The horse made a bound forward and gave a violent kick, running the prong into the postero-exterior part of the thigh. The end of the handle striking in the corner of the stall, the fork remaining in, the horse continued kicking and surging about until the handle was broken into pieces and the prong driven in its full length. It came through on the inside of the joint, just beneath the patella. Great excitement in the village; the horse squealing, kicking, throwing himself down, and the blood flying all around. After getting the horse somewhat quieted and secured, a stalwart fellow pulled out the fork, having to make the second effort and use his full strength. The prong was bent in different places and directions.

On arriving, two hours later, found an ugly lacerated wound on the outside of thigh, three inches wide and into the bone and having a pocket three inches deep. Inside of joint showed a small

¹ Read before the semi-annual meeting of the Pennsylvania State Veterinary Medical Association, Pittsburg, September, 1898.

puncture where point of prong came through. The horse was suffering intensely, keeping the injured limb in constant motion.

After cleansing wound and limb, I rubbed in blister-ointment thoroughly over the entire joint, and also plastered the exterior wound full of the same (getting severely criticised for so doing). Next morning horse stood firmly upon the injured limb, breathing naturally and feeding well. Rubbed on more ointment, although the blister was acting freely and the leg already enormously swollen. The swelling kept very tense for three days, but the horse stood and tread firmly. Gave him much walking exercise (for which I was again severely criticised). On the fourth day the outside wound commenced to discharge a healthy pus. It was syringed twice daily with chloride-of-zinc lotion, ten grains to the ounce, and the whole leg bathed frequently with cold vinegar and water, equal parts. Upon the twelfth day the leg had resumed its natural size, and upon the nineteenth day the horse was put to work, the wound having healed and lameness gone.

In justice to some of the Dutch villagers, will state that the fork was carefully greased and put in a dry place *before I arrived*.

Berlin has the smallest elephant in the world. It is thirty-nine inches high and weighs 160 pounds.

The smallest horse in the world is a Shetland pony owned by the Marquis of Carcano. Its height does not exceed twenty-eight inches.

WASTE OF HUMAN LIFE. While progress in civilization has brought greater care of human life, there is yet a prodigal waste. Dr. A. Hill, Vice-Chancellor of Cambridge University, states that one-fourth of all the diseases that destroy life are absolutely preventable, and that if the practice of hygiene were only on a level with its theory the average longevity would be raised at once from fifty to fifty-five years. The greater number of diseases over which the individual has control are due to mistakes in eating and drinking. One purpose yet to attain is a more exact knowledge by every citizen of the causes and properties of preventable diseases, but it is hardly surprising that the knowledge is still so slight, when even medical men hardly realized the contagious character of consumption twenty years ago, although one-third of the cows in England were tuberculous and half the milk sold distributed the bacillus of tuberculosis.

EDITORIAL.

1898-1899.

WITH this number we close the nineteenth volume of the JOURNAL. The year 1898 will be remembered by the veterinary profession as the one closing the long period of depression in animal husbandry and the era of the lowest equine values in many years. The continued depression for more than four years reached its severest limit in 1898, and likewise the long-promised recovery from this period of great losses made itself felt throughout our entire land. The rapid decline of breeding for more than five years; the many times multiplied foreign markets; the increased needs at home from a war demand; the realization that the automobile is yet only a toy; the decline of the bicycle, and the increased demand for saddle-horses; the readjustment of business inequalities over our land, have all played a part in this steadily improving condition among those engaged in the horse-industry. The greater attention to pure food-products; the urgent need of sanitary police systems in every community; the wider foreign market for our surplus food-products, and the determination to hold these fields of consumers, have all added to the tide of prosperity flowing toward the fields in which the broadest and deepest interests of the veterinarian lie. With this better condition have come evidences of stronger support and still brighter prospects for veterinary journalism. During the year just closing the JOURNAL has been enabled to spend more than a thousand dollars in sending forth among the more than nine thousand veterinarians of North America special editions of the JOURNAL, and this contribution on our part has added to the JOURNAL the largest number of readers, the largest paid-up subscription list it has ever enjoyed during the past ten years, and though we have conducted since December, 1896, only a paid-in-advance list of subscribers, the JOURNAL has touched in the year just closing the largest subscription list ever accorded it. This has enabled us to give more freely to the profession, add new departments to our columns, and widen the field of information in every direction. With the same generous support in 1899 we shall maintain every advantage gained; and, with the best and largest corps of contributors in its history, we will keep ever foremost the aim we have kept as our guide—to "Lead Veterinary Journalism in America."

OUR NEW DEPARTMENTS.

DURING the year just closing, the JOURNAL, in addition to the widest range of general information, the assistance of the ablest writers it has ever enjoyed, has added to its columns a department of therapeutics, and later one upon surgery. These subjects, of so much practical interest to the everyday practitioner, will be maintained under the special direction of members of the profession well-known to the readers of the JOURNAL and in every way peculiarly equipped for this work. The many advantages to be derived by one of the largest surgical practices in this country will find expression in these monthly contributions to our pages, while the field of surgery in city and country practice will from time to time be specially referred to by those who will conduct this department in the interest of our readers. The broad field of therapeutics will be monthly scanned for the freshest notes in applied medicine, and the newer drugs and remedies will be constantly recorded, that the profession may be kept in touch with the best thought and progress in these directions. Every assistance to those conducting these departments will be fully appreciated by the editorial direction and management and equally so by the largest number of readers ever enjoyed by the JOURNAL.

NEW YORK WINS FOR 1899.

THE thirty-sixth annual meeting of the American Veterinary Medical Association will convene in New York City in September. This decision of the Executive Committee reaches us just as the last forms of the JOURNAL are closing up, and the succeeding issue of the JOURNAL will more fully report the decision arrived at by the vote of the Executive Committee.

We shall only say at this time that the sentiment seemed among the profession to lean toward this great metropolis. Those of the West who expressed the belief that New York was as far east as they could hope to go will feel well satisfied with this decision, while those of the New England States who favored Boston cannot find any fault with the decision on the score of geographical situation, and New York should have the strongest support from the New England States, as she will have of those in the territory east of the Allegheny Mountains, in making the meeting the grandest and best in the Association's history.

The JOURNAL tenders its congratulations and pledges its most earnest assistance and support.

ORGANIZE FOR BETTER VETERINARY LAWS.

MANY of the State veterinary organizations will this winter knock at the doors of their respective Legislatures for the enactment of laws looking to a proper recognition of the veterinary profession and its higher standing, and for the protection of the people from ignorant pretenders, quacks, and humbugs who prey like parasites upon a confiding public. It is unfair to say that intelligent communities or people should not allow themselves to be so imposed upon or taken advantage of; but when one thinks of how many directions one must trust to wise laws and ordinances for self-preservation, the public should not be left in this all-important direction without the strongest safeguards. One thought alone—how dependent upon the veterinary profession are our people, in the sanitary field and its adjunct of a nation's food-supply, over which the veterinarian is the only one fully equipped to shoulder its responsibilities and discharge them with fidelity to the people's interest—should awaken every good citizen to the safeguards needed to fill these places with competent and properly educated guardians.

Tennessee and Vermont have already planned for legislation in this direction. The former State has her veterinary organization well drilled. The latter Commonwealth, with her newly-born association, should alike command every assistance and support from the whole profession in its laudable undertakings, and every veterinarian should contribute such suggestions as will bring to these movements the support of an enlightened public, and thereby insure success. The opposition to all these movements invariably arises from ignorance and ignorant pretenders, who are only parasites on the profession's body and whose chief aim and purpose in life is that of deception and humbug, to the detriment of the progress, health, and happiness of every community.

MARRIAGE.

DR. T. W. SCOTT, formerly of Nashville, but more recently of Clarksville, Tennessee, was married November 5, 1898, to Miss Annie Oglesby, of the latter city. The ceremony was performed by the Rev. R. A. Webb. The many friends of Dr. Scott who had the pleasure of his acquaintance at Nashville in September, 1897, will wish him and his bride the utmost happiness and prosperity.

NEW PUBLICATIONS.

PHYSICIANS' VISITING LIST FOR 1899. P. Blakiston's Son & Co., Phila.

THIS well-known *Visiting List* appears for 1899 as the forty-eighth yearly edition. No testimonial as to its worth and merit can be more pointed than this, as it indicates its appreciation among a large number who yearly have had it in use. The many valuable tables it contains for ready reference have been constantly added to and more and more relied upon by the busy practitioner. Many veterinarians have found it quite convenient for their use, and it will no doubt find a wider field of employment in this direction. As the profession becomes better acquainted with the ready manner it affords one of rendering a requested account it will find increased appreciation of its merits.

THE Pope Manufacturing Company has sent forth its Annual Calendar for 1899, in which the merits of the Columbia Wheel are brought out more prominently than ever. Its value on one's office desk as a daily reminder of engagements fills a useful purpose for a busy man, and its many apt quotations are interesting and instructive. Colonel Pope, the head of this corporation, will be best remembered by the veterinary profession for his earnest, aggressive, and successful agitation for good roads, which, while contributing to the increased use of the bicycle, has at the same time added thousands to the great numbers constituting the driving public.

Dr. William H. Yingst, of Harrisburg, Pa., a volunteer in the army and who was assigned to veterinary duties while in the service, was mustered out early in November. He has no desire to return to army life under present conditions. The doctor says that in order to partially discharge his professional duties to his patients he expended from his own funds sixteen dollars for medicines, which expenditure was rendered necessary owing to the inadequate and antiquated supplies furnished for the army veterinary service.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, was a recent visitor to Sing Sing, N. Y.

SOCIETY PROCEEDINGS.

CHICAGO VETERINARY SOCIETY.

THE regular monthly meeting of the Society was held November 10th, President Robertson presiding. The following visitors and about twenty members were present: Drs. Boyd Baldwin, Walter E. Howe, and L. Enos Day. Dr. H. D. Paxson, U. of Pa., 1893, was admitted to membership. Owing to disagreeable weather, many refrained from attending.

The papers expected from Dr. Joseph Hughes, "Cases Met With in Practice," and reports of cases by Dr. John F. Ryan, were not presented, due in both instances to illness of the gentlemen. Matters, however, were mended by Dr. L. A. Merillat's response to President Robertson's call for a résumé of his paper on the "Action of Eserine," read before the U. S. V. M. A. The recitation brought out quite a lively discussion, following which Dr. Merillat called attention to Dr. Roscoe R. Bell's paper on "Acute Indigestion," commending it as worthy of careful perusal.

Dr. H. W. Hawley was next called upon and asked, "What is the Usual Length of Time for a Horse to go Sound Following the Operation of Neurectomy for Navicular Arthritis?" which brought out a very interesting discussion.

Dr. E. L. Quitman related a case of "Calcification of Parotid Gland and Steno's Duct," after which the discussion was closed and the following papers were announced for the December meeting. Dr. H. W. Hawley, "Lameness on Leading Out;" also, "Vices and their Relation to Soundness." Dr. A. M. Casper, "Temperature and its Relation to Soundness."

JOSEPH B. CLANCY,
Secretary.

Report of cases and experiments discussed before the Chicago Veterinary Society, November 10, 1898.

Dr. Merillat: During the past winter Dr. Reading and myself made several experiments on dogs at McKillip Veterinary College for the purpose of ascertaining the action of eserine. Eserine is an alkaloid and is described as a stimulant of the muscles of the bowels and, in fact, all muscular tissue. Through these experiments, however, we have shown that the action of eserine was purely upon the nerve-centres, and that instead of being a stimulant to the muscular coat of the bowels, it is no more than a depressant to the nerve-centres. Eserine depresses or paralyzes the nerves which stop the bowels, the inhibitory nerves, and by doing so rapidly empties them. In experimenting on horses that have paralyzed bowels we found that eserine was not active, but that it will act on the colon when there is marked peristalsis.

I may also mention the new treatment for acute indigestion recommended by Professor Bell, whose paper read at Omaha on "Acute Indigestion," is one of the best ever written on the subject. His treatment is very simple, and consists in the administration of large amounts of dry animal charcoal. It is well known to the chemist that charcoal will absorb about four hun-

dred times its volume of gas; if, therefore, a great amount, say eight or ten ounces, be administered dry, it will rapidly absorb any gas in the stomach. Dr. Bell reports great success in cases of acute indigestion by such treatment. He emphasizes the fact that if you wish to get any benefit from this treatment the charcoal must be administered dry and in combination with sodium bicarbonate. You may combine other treatment, as the administration of the charcoal does not in any way interfere with other agents used for this condition. I think it is certainly a treatment that every city practitioner should try.

Dr. Campbell: It seems to me that as soon as the capsule in which the charcoal is administered gets wet the charcoal gets wet also, and it would not have the desired effect.

Dr. Merillat: As charcoal absorbs about four hundred times its volume of gas, as stated before, one ounce would be enough to have the desired effect if it did not moisten in the stomach; but, instead, he administers a much larger amount, so that while a portion of it gets moist, the balance remains dry and absorbs the gas.

Dr. Quitman: Regarding the action of eserine, I am very much pleased to hear of the experiments that Dr. Merillat has made, inasmuch as they bear out my idea from a theoretical standpoint. We know that some drugs have the power of paralyzing the motor nerves. I worked it out in the same way. In regard to its indications and use, I would dislike very much to be without it, as I am usually successful with it. We have to select our cases to administer it. Where there is paralysis of the bowels, sometimes you get good action, even then, by giving it in small doses, repeated. I get eserine in one-and-a-half grain sealed tubes. It becomes moist on instant exposure; therefore I buy it in one-dose tubes, so as to keep it fresh. The tablets, I think, are worthless, because such a drug cannot be entirely protected from atmospheric moisture.

Dr. Hawley: This discussion calls to my mind a case, and it does not bear out the theory of either Drs. Merillat or Quitman. In 1891, while I was assistant to Dr. Hughes, a horse weighing about 1200 pounds was brought to the college. It was apparently a case of ordinary impaction. I do not remember all of the treatment, but I do remember that he received, first, a pint of linseed-oil, which was followed with a half-pint every four hours for eleven days.

Dr. Hughes was at that time much opposed to administering eserine, but finally consented. A grain and a half of eserine was injected, and we had a violent action of the bowels in twenty minutes, presumably one-half bushel of feces, and the horse finally recovered.

Dr. Merillat: I think this is a nice case that demonstrates the theory of Dr. Quitman and my own. Dr. Hughes probably had the horse in good condition to get the action of eserine. The treatment that Dr. Hughes had previously given was just commencing to take action on the bowels and the administration of eserine had the desired effect.

Dr. Campbell: I had a case similar to that of Dr. Hawley's. After administering eserine, although it had very violent action, the horse died two days afterward.

Dr. Quitman: That recalls to my mind a case I had some time ago. It apparently seemed to be an ordinary case of colic. A colic-drench and purgative ball were administered without any good effect. The sounds in

the bowels were normal. I repeated the purgative, gave injections of eserine, and there was absolutely no result until the fourteenth day, when the horse passed a few pellets. I did not know what else to do, and came to the conclusion that there was an intestinal obstruction, and advised the owner to turn the horse out. On the thirty-first day enteritis set in, and the horse died. I went out to the country and held a postmortem, and I found a calculus that weighed about one pound and two ounces, rounded in shape, and the pouch in which it was developing very much thickened. It was located about two feet back of the commencement of the single colon. Another peculiar feature I noticed was that the digesting portion of the stomach was atrophied and looked like parchment. Of course, cases where there is obstruction of the bowels cannot be helped by eserine.

I also have a case of lameness that I would like to have some one help me out on. She is a driving mare, and starts out apparently well, and after she is driven five or six miles and is turned around starting for home she starts to go lame, then suddenly goes sound again. It is in the off front leg. She had been going that way for five or six days, when the owner asked me to examine her. I examined the leg in question, taking the owner's word for it—as he is a very good horseman—as to which leg she was lame in. I rode behind her, and drove about eight miles, then let her stand quite awhile, but could not discern any lameness. I prescribed an ointment of cocaine and morphine dissolved in oleic acid and mixed with oleate of mercury and lanolin, but this did not overcome the lameness. I have not seen the mare since, but I know the owner speaks the truth because he is not a man to fool me. Now, I do not know what to make of it. I am handicapped somewhat in not seeing the mare. All I noticed when I drove her and examined her foot was what seemed to be a small splint.

Dr. Merrillat: How long had these symptoms been manifest?

Dr. Quitman: About four weeks.

The Chairman: Will Dr. Hawley favor us with a few remarks?

Dr. Hawley: I would like to ask a few questions in regard to neurectomy. How long does an animal usually go sound following successful operation for navicular arthritis?

Dr. Quitman: I know of a case that went sound for seven years.

Dr. Allen: I know of one that I operated upon—high operation—ten years ago, and he is sound to-day.

Dr. Merrillat: The length of relief from the operation depends, in my opinion, upon the work that they have to do afterward. The average in lower plantar operation is two years. High neurectomy is an operation that I would recommend only as a last resort for navicular disease, as the danger is too great, though in many cases it may prove successful. Meso-neurectomy is very efficient in tendonitis. In all such cases it gives prompt relief, and often completely straightens the tendon.

Another operation that is effectual in spavin is post-tibial neurectomy. It is a sure relief to ringbone where there is no mechanical obstruction. All these neurectomies require a little courage, but I think we would advance our profession a great deal if they were universally adopted.

Dr. Allen: I am much in favor of the high operation. For about ten years that I have been in active practice I have performed three or four of the lower and about seventy of the higher operations, and I have yet to lose my first case. As to post-tibial neurectomy for ringbone, I always per-

form high operation with good results, and do not see the necessity of going as high as Dr. M. recommends.

Dr. Hawley: In absolute navicular arthritis I do not see the necessity of performing the high operation.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE regular meeting was held in the Library of the College on the evening of November 3d. The President, Dr. Adami, occupied the chair; there was a fair attendance of members, supplemented by the presence of the Hon. President, Dr. D. McEachran, Prof. Mills, Dr. Alloway, Dr. Gunn, Dr. Moore, and Dr. Sugden.

After disposing of routine business, the chairman called upon Mr. Kato, who then presented to the Society his essay on "Eclampsia." The word eclampsia (derived from the Greek), meaning to shine or burst forth, was used by some authors at a very remote period, and is now the term commonly applied to cramp or convulsion of involuntary muscles, occurring after parturition. It is generally believed that the disease attacks mostly bitches. Opinion as to its cause is very varied, but that the symptoms result from a disordered nervous system is beyond question; but it is very difficult to determine the cause of this condition. Like the other tissues of the body, the nerves undergo a process of degeneration and repair, and it is possible that in this disease the materials proper for its repair are not circulating in the bloodvessels, and thus bring about this disordered action of the nervous system, which system must always be considered as an important factor, especially in such diseases as eclampsia. The dogs most susceptible were Skye-terriers, Yorkshire spaniels, and collies, and the various toys. This increased susceptibility is probably due to their excessive sensibility to external influences, such as excitement, worry, etc. Mr. Kato then described a case which came under his own notice. In spite of the severe nature of the disease, consciousness is not lost, and any one may often observe an animal try to wag its tail when called by name. An attack may last for twenty-four hours or more, but with varying intensity during that period. In mild cases recovery takes place without treatment. On the other hand, if the attack be an acute one the patient may fall into a comatose condition and die in a very short time. A sedative treatment is indicated, and for this purpose we may use hypodermics of morphine, the administration of chloral hydrate, bromide of potassium, or inhalations of chloroform. Warm baths, followed by massage, often relieve spasms and release these muscles. An oleaginous laxative may always be given with benefit. Mr. Kato, in conclusion, said that a dark, quiet, well-ventilated place was infinitely better for the patient than noisy surroundings, and that the prognosis was fairly favorable, provided that the patient be attended at the proper time with energetic measures.

Before making any remarks on the subject of eclampsia, Dr. McEachran complimented the essayist on the excellent paper which he had read, and upon the exceedingly good manner in which it was delivered, in what was to Mr. Kato a foreign language. Dr. McEachran has most frequently seen eclampsia in bitches left with too many pups to suckle, the excessive secretion of milk causing a depletion of the blood, which resulted in an anæmic condition of the various nerve-centres. Treatment was, as a rule, attended

with success, and the disease need not be looked upon as a formidable one by the young practitioner.

Before closing his remarks Dr. McEachran extended, on behalf of the Society, a very hearty welcome to Dr. Alloway, who subsequently made a few remarks, commencing by recalling his early days in college, he having purchased some thirty-one years ago the animal whose skeleton now adorns our lecture-room. Dr. Alloway, who has recently returned from the Western States, spoke of the comparatively high value of dogs in those regions, and pointed out to the students the necessity of their giving up the old habit of devoting all their attention to the study of the equine race.

Dr. Mills also complimented Mr. Kato, and, in continuing, said that he had found the Japanese spaniels more delicate than any other of the toy breed. He had never had a case of eclampsia in his own kennels, which fortunate state of affairs he attributed to his bitches being regularly exercised and never being allowed to suckle too many pups.

Before considering the subject of eclampsia, Dr. Adami expressed his pleasure at being with the Society once more. Eclampsia of the bitch differed very widely from eclampsia of the human subject, although in both the condition was closely allied with the puerperal state; in the human being it was a far more serious disease. Observations now seemed to point to some alteration of the blood as the path along which we must search for a solution of the problem. Patches of coagulated necrosis were commonly seen in the liver, more frequently in this than any other disease. These might possibly be due to thrombosis; so far no bacteria had been found in them, and it is supposed that this condition may be produced by toxins. Hitherto all attempts at finding a specific microbe had failed.

Mr. Groves then reported the following interesting case: The subject, a male dog, ten years old, of spaniel breed, brought to the college for treatment. The dog was unable to walk in a straight line, often falling down, and lying down more than usual. This condition was noticed for about two weeks. The symptoms presented were a general debilitated condition, coat rough and dry; the tongue protruding from the left side of the mouth, the neck straight and sometimes inclined to the left; the body resembled the segment of a large circle, with its centre on the right side; lameness in the right foreleg, and general paresis. Diagnosis: pressure on base of the brain, probably a tumor; prognosis, unfavorable. Treatment useless; but, as the owner desired that we should do something, he was given nuxvomica, iodide of potash, and gentian. Two months afterward the animal was brought back to be destroyed. The symptoms were much aggravated, the dog lying most of the time, but he could get up, and when he tried to go fast fell down; when standing, would brace himself against some object, and when walking would walk almost sideways, always going to the right; his head was turned on its axis from the right to left, the right side being the highest; this was not continually the case, for he would at times hold his head straight; his vocal power was lost, and he had difficulty in swallowing; sight was not impaired. The dog was chloroformed and postmortem held, which resulted as follows: The various organs of the body were found to be normal, but on the inferior part of the medulla there was found a tumor about the size of a marble. It was attached closely to the wall of the foramen magnum, so that it had to be separated with a knife. It was semicircular in form, with a broad base.

Dr. Gunn considered this an operable case, and a surgeon would have been guided to the right lobe of the cerebellum as the seat of tumor. The diagnosis would have been wrong, but the surgeon's incisions would have been over the tumor, which could have been shelled out with a possible good result. The recognized symptoms of the disease of the cerebellum are almost exactly those given by Mr. Groves, viz.: (a) rotation of the body away from the line on the opposite side to tumor; (b) the neck was twisted and chin turned to side of tumor; (c) bending of the body, the concavity being on the affected side; (d) monobrachial paralysis, which is not very definite in this case; (e) eye-symptoms were not much observed in this dog. The relative size of the pupils was different, but there seems to have been no nystagmus nor strabismus, as is common in cerebellar trouble. Convulsive and choreic seizures and vomiting are reported as absent here, but usual in pure cerebellar trouble.

Dr. Mills regretted that the symptoms produced in the eye and ear were not more closely noted, and said that the views held upon functions of the cerebellum were very divergent. He had, unfortunately, never seen a case of cerebellar disease in the dog.

After a few words from the chairman, the meeting adjourned.

JAMES MCGREGOR,
Secretary-Treasurer.

VERMONT STATE VETERINARY MEDICAL ASSOCIATION.

THE first meeting was held at Montpelier, October 25, 1898. The meeting was well attended, and was a success as a primary organization. No business was transacted, with the exception of adoption of by-laws and election of officers, as follows: President, F. A. Rich, Burlington; Vice-President, H. W. Burgess, Bennington; Secretary, Ion W. Parks; Treasurer, H. Buss, St. Johnsbury; Executive Committee, G. A. Miller, Burlington; J. F. Page, Manchester Centre; E. W. Culley, Morrisville; H. Buss, St. Johnsbury; J. C. Parker, St. Albans; W. L. Adams, Hardwick. Committee on Credentials: W. H. Burgess, Bennington; C. L. Morrin, St. Albans; A. B. Gay, Randolph.

KEYSTONE VETERINARY MEDICAL ASSOCIATION APPOINTMENTS, 1898-1899.

Committee on Programme: W. L. Rhoads, chairman; J. J. Repp and J. W. Adams.

Committee on History: Charles T. Goentner, chairman; W. Horace Hoskins and W. B. E. Miller.

Committee on Legislation: W. Horace Hoskins, chairman; F. S. Allen, W. S. Kooker, James B. Rayner, and W. H. Ridge.

Committee on Army Legislation: C. J. Marshall, chairman; Francis Bridge, H. P. Eves.

TENNESSEE VETERINARY MEDICAL ASSOCIATION.

THE third annual meeting was held in Chattanooga on Monday, October 24, 1898. The President, Dr. Joseph M. Good, occupied the chair, and in his opening address touched briefly on many subjects of importance to the

veterinarians throughout the State. He referred to the benefits which had been derived from such an organization, and outlined the good results which we might hope for in the future, and showed that the veterinary profession in the State was on a better standing now than at any time in the past. The attendance, considering the limited number of qualified men in the State, was very gratifying, as the following members answered to their names: Drs. Joseph M. Good, H. D. Fenimore, J. W. Scheibler, T. W. Scott, W. C. Rayen, G. B. Blackman, G. R. White, Joseph Plaskett. The Secretary read the minutes of the last meeting, and after some slight alterations these were adopted.

The Committee on Legislation presented a report stating that during the coming meeting of the State Legislature a strong effort will be put forth to obtain the passage of a bill regulating the practice of veterinary medicine and surgery within the bounds of the State. This bill will compel all qualified practitioners to register, and will give all unqualified men who have been practising for five consecutive years in the State the privilege of registering and continuing their practice. It is also intended to create a State Veterinary Examining Board, which shall be appointed by the Governor from members of the Tennessee Veterinary Medical Association. It seems to be the opinion of the members that if a proper effort were made the passage of such a bill could be obtained; and each one pledged himself to use his best efforts in that direction.

The Committee on Resolutions presented a report deploring the fact that the cities of Memphis, Chattanooga, and Knoxville had no system of meat- and milk-inspection under the supervision of a man specially qualified for such duties, thereby endangering the health and lives of their citizens, and it was resolved that such a condition of affairs necessitated a system of inspection as conducted by other cities in the country, which system is directly under the control of qualified veterinarians specially educated for such positions. It was also resolved that the Tennessee Veterinary Medical Association do most earnestly coöperate with the Legislative Committee of the American Veterinary Medical Association in its efforts to obtain recognition of and commission for the army veterinarian.

The reports of the Committees on Legislation and Resolutions were adopted. The next business being the reading of papers, the President called on Dr. Blackman, who responded with a thoughtful and well-prepared paper on the subject, "Veterinarians as Sanitarians." All the members joined in the discussion which followed, and it proved to be an interesting and instructive topic.

He was followed by Dr. White, whose subject was "Municipal Meat-inspection." Dr. White's position as meat-inspector for the city of Nashville enabled him to handle the subject in a competent and practical manner, and he plainly illustrated the necessity for a system of inspection in all the larger towns of the State.

Dr. Plaskett came next with a paper on "Trismus in Horses," a disease which does not appear to be described in the text-books or in veterinary literature. It is quite prevalent throughout the South, and in the discussion which followed every member had something to say on the subject in some of its aspects.

Dr. Fenimore followed with an informal talk on the subject of "Vilde und Rinderseuche." He described an outbreak which had occurred on the

State farm at Knoxville and the difficulty which had been experienced in properly diagnosing it. He described the symptoms, attempts at treatment, etc., and for further information referred the members to a paper which he had prepared and which was read at the annual meeting of the National Association. The next business being the election of officers, the following were elected for the ensuing year: President, Dr. H. D. Fenimore; First Vice-President, Dr. T. W. Scott; Second Vice-President, Dr. R. E. Collins. Dr. Plaskett was reëlected as Secretary, and Dr. Blackman was elected Treasurer. The time and place of the next meeting was left to the Executive Committee, composed of the officers of the Association, and, there being no other business, the meeting adjourned.

JOSEPH PLASKETT, D.V.S.,
Secretary.

SEVENTH INTERNATIONAL CONGRESS OF VETERINARY SURGEONS, BADEN-BADEN, AUGUST 9 to 14, 1899.

THE following gentlemen have undertaken to draw up reports of the subjects already announced for transaction and discussion by the congress.

a. Precautionary measures against the spread of epidemic diseases in consequence of international trade in animals.

Reporters: Cope, President of the veterinary surgery section of the Chamber of Agriculture, London; Dr. Hutyra, Professor and Head of the Veterinary Academy in Budapest; Leblanc, veterinary surgeon for epidemic diseases, Member of the Academy of Medicine in Paris; Vollers, Government veterinary surgeon in Hamburg. (Swiss reporters are still wanting.)

b (1). The prevention of tuberculosis among domestic animals.

Reporters: Dr. Bang, Professor at the Veterinary College in Copenhagen; Dr. Siedamgrotzky, Privy Medical Councillor, Professor in the Royal Veterinary College in Dresden, district veterinary surgeon in the Kingdom of Saxony; Dr. Stubbe, Veterinary Inspector of the Ministry of Agriculture in Brussels.

(2). The prevention of the use of the flesh and milk of animals suffering from tuberculosis.

Reporters: Butel, veterinary surgeon to the slaughter-house in Meaux; de Yong, Government veterinary surgeon in Leyden; Dr. Ostertag, Professor at the Royal Veterinary College in Berlin.

(3). The latest suggestions for an effectual meat-inspection.

Reporters: Dr. Edelmann, superintendent of meat-inspection in Dresden; Kjerulf, Government veterinary surgeon in Stockholm; Postolka, Imperial official veterinary surgeon in Vienna.

c. The prevention of foot-and-mouth-disease.

Reporters: Paul Cagny, veterinary surgeon in Senlis; Cope, as above, of London; Dr. Dammann, Privy and Medical Councillor, Professor and Head of the Royal Veterinary College in Hanover; Dr. Furtuna, President of the Veterinary Office in Bucharest; Hafner, Councillor and veterinary referee of the Grand Ducal Ministry of the Interior in Carlsruhe; Hess, Professor at the Veterinary School in Berne; Lindquist, Professor

and Head of the Veterinary College in Stockholm; Dr. Wirtz, Professor and Head of the Veterinary College in Utrecht (has not yet given a decided answer in the affirmative).

d. The prevention of swine fever.

Reporters: Leclainche, Professor in the Veterinary School at Toulouse; Dr. Lorenz, Grand Ducal medical officer in Darmstadt; Dr. Perroncito, Professor at the Veterinary Academy in Turin.

e. The extension of veterinary instruction, especially by the establishment of institutions for experiments in diseases and by founding chairs of comparative medicine in colleges for veterinary surgery.

Reporters: Degive, Professor and Head of the Veterinary College in Brussels; Dr. Kitt, Professor at the Royal Veterinary College in Munich; Dr. Malkmus, Professor at the Royal Veterinary College in Hanover; Dr. Nocard, Professor at the Veterinary College of Alfort, Paris, Member of the Academy of Medicine; Dr. Raupach, Councillor, Professor and Head of the Imperial Veterinary Institute in Dorpat; Dr. Schütz, Privy Councillor, Professor at the Royal Veterinary College in Berlin.

f. Conclusion of the work of drawing up a universal anatomical nomenclature in veterinary medicine in accordance with resolutions passed by the Sixth Congress.

Reporters: Dr. Ellenberger, Medical Councillor, Professor at the Royal Veterinary College in Dresden; Dr. Süssdorf, Professor at the Royal Veterinary College in Stuttgart.

g. Veterinary officials.

Reporter: Dr. Lydtin, Privy Councillor in Baden-Baden.

The majority of reporters have agreed to send in their reports by January, 1899. The translation and printing of the reports will take about two or three months, though single reports may be ready during the first quarter of 1899.

In order that the gentlemen who wish to take part in the work of the Congress, or who take an interest in this work, may receive the reports and other publications of the Congress at the earliest possible date, it is requested that applications for membership shall be sent in at once or, at the latest, by March 31st next year. This is to be done by sending the member's fee of \$3.00 to the Filiale der Rheinischen Credit-Bank in Baden-Baden. Gentlemen who have become members, even if unable personally to be present at the Congress, will receive by post, free of charge, all publications, including the General Report of the proceedings. Those gentlemen who do not enter their names until the opening of the Congress will only receive the publications supplementarily.

The Committee of Management begs to draw attention to the fact that applications for apartments and rooms in boarding-houses can already be received by the Lodgings Committee, Lichtenthalerstrasse 9 I Stock, Baden-Baden.

Professor Noyer, of Berne, General Secretary of the Sixth International Congress of Veterinary Surgeons, Mr. Siegen, of Luxemburg, Government veterinary surgeon, Mr. Haas, of Metz, district veterinary surgeon, President of the Veterinary Society of Alsace-Lorraine and Mr. Zundel, of Mulhausen, Alsace, district veterinary surgeon, have kindly undertaken to

act as interpreters from German into French and *vice versa*. The interpreter for English will not be decided upon until an adequate number of English-speaking members is announced.

The Committee of Management: Dr. Casper Hoechst, Secretary; Dr. Lydtin, Baden-Baden, President.

BADEN-BADEN, November 3, 1898.

ONTARIO VETERINARY COLLEGE, VETERINARY MEDICAL SOCIETY.

THE first meeting of the Veterinary Medical Society of this College was held on the evening of October 14th, Prof. A. Smith, F.R.C.V.S., the Principal, presiding. Mr. Wesley M. Goff read an excellent essay on "Bacteria." Mr. G. Jerome brought forward a carefully-prepared paper on the "Progress of Veterinary Science." Mr. F. J. Kerwan read a paper on the "Examination of Horses for Soundness," and Mr. J. Lea Shorey read a communication on "Neurectomy." The discussions following each paper were animated and interesting.

The second meeting was held on the evening of October 21st. Mr. Wentzell read an exhaustive paper on "Open-joint." Mr. W. A. Sproule read a paper on "Castration," describing different methods of operating; and Mr. Charles Manning read a good paper on "Parturient Apoplexy." The papers were ably discussed by several of the members of the senior class, the one on parturient apoplexy eliciting an interesting discussion on the new treatment of that disease, called "Schmidt's treatment," and its cause ascribed to toxins developed in the mammary gland at that time.

These meetings are held weekly, and the discussions arising at them must prove of much benefit to the students attending the college.

W. M. GOFF,
Secretary.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

THE fourth regular meeting of the year was called to order November 18th, at 8 o'clock. Mr. Taylor was appointed critic. After the transaction of the business pertaining to the welfare of the Society and its members, the literary programme of the evening was next in order, and the Society had the pleasure of being addressed by its honorary president, Dr. John W. Adams, his subject being "Flat Worms of Domestic Animals." The enthusiasm shown upon his being introduced, and likewise his lecture, clearly demonstrated the fact that the members were greatly pleased with it. An important feature of his discourse were the charts he used in making his subject better understood. A vote of thanks was extended to Dr. Adams.

Meeting adjourned at 9.30 P.M.

The fifth regular meeting of the year was called to order December 2d, at 8 o'clock. Mr. Cheney was appointed critic. This meeting was devoted to the consideration of the annual banquet of the Association and the reports of the various committees having in charge the several features of the annual occasion. The names of Messrs. Horner, Bassler, Hart, and Sidel were proposed and duly elected to membership.

The meeting adjourned at 9.50 P.M.

L. A. NOLAN,
Secretary.

PERSONALS.

Dr. F. D. Markham, of Port Leyden, N. Y., is associated with his father in the management of the Fair View Stock Farm, where he also maintains hospital accommodations for his patients.

Dr. C. S. McKenna, of Washington, Pa., has disposed of his practice to Dr. D. E. Kimmell, of Washington, Pa., and will repair to a drier climate in the hope of regaining his health.

Dr. Harry Walter, of Wilkesbarre, Pa., while on a trip to New York and Philadelphia, was forced to take to his bed in the latter city with a severe attack of the "grippe."

Dr. L. H. Smith, graduate of the Ontario Veterinary College, class of 1897, is a student at the Baltimore Medical College, taking a course in human medicine.

Dr. H. A. Meisner, of Baltimore, Md., was a visitor to Philadelphia on a professional mission in October.

Dr. J. Herbert Snider has removed from Wawanesa to Baldur, Manitoba, and reports prospects as very bright in that territory.

Dr. C. Hervey Bugbee, graduate of the Ontario Veterinary College, has located permanently at Keene, N. H.

Drs. J. M. Phillips and A. Darling acted as veterinarians to the St. Louis horse-show early in November.

Dr. Bernard Gunther, of Brooklyn, N. Y., was a visitor to the JOURNAL office in the latter part of October.

Dr. D. Ryder, of Chambersburg, Pa., is taking a special course of instruction at the Veterinary Department of the University of Pennsylvania.

Dr. Harry Walter, of Wilkesbarre, Pa., was a visitor to the "City of Brotherly Love" and to "Gotham" early in November.

Dr. D. Ryder, of Chambersburg, Pa., and Dr. E. H. Landes, one of Camden's Coroners, recently returned from Tampa, Fla., where they were formerly engaged in the work of stamping out glanders and other infectious and contagious diseases.

Dr. J. P. Turner, of Washington, D. C., Inspector of Dairies for the Health Bureau of Washington, was a visitor to West Chester and Philadelphia in November.

Dr. J. J. Repp, of Philadelphia, recently visited Potter County for the State Livestock Sanitary Board, to investigate an extensive outbreak of verminous bronchitis in some five hundred calves varying in age from five to eight months.

Dr. George Townsend, of New Glasgow, Nova Scotia, holds the position of livestock inspector for that district.

Mr. George H. Metcalfe, of Syracuse, N. Y., late assistant to Dr. J. C. McKenzie, and a third-year student of the New York College of Veterinary Surgeons, committed suicide in a livery stable at Syracuse on October 19, 1898.

Dr. C. J. Alloway, graduate of the class of 1869 at Montreal Veterinary College, was a recent visitor to his alma mater.

Dr. Geo. H. Bailey, State Veterinarian of Maine, has well sustained the position of that Commonwealth on the intelligent management of bovine tuberculosis. Dr. Bailey places New Hampshire in an embarrassing position by pointing out the dangerous methods that State is employing with this scourge.

Mr. R. A. Pearson, of the dairy division of the Department of Agriculture, was a welcome visitor to the November meeting of the Keystone Veterinary Medical Association, and spoke warm words of encouragement of the Society's work in the bettering of the milk-supply of Philadelphia and vicinity.

Dr. L. A. Nutting, of Syracuse, N. Y., met with the loss by death of his father in October.

Dr. P. K. Jones, of Pittsburg, Pa., was a visitor to Philadelphia and also to the New York Horse Show in November.

Dr. F. C. Grenside, of New York, was the judge of saddle-horses at the Cleveland horse-show in November.

Dr. J. H. Pear, formerly of Chicago, Ill., has removed to Saugatuck, Mich.

Dr. R. Lindsey Tritton, of Richmond, Va., graduate of the New York College of Veterinary Surgeons, enjoys a large practice in that Southern city. He has a son among the list of students at his alma mater.

Dr. E. M. Massinger, fills the rôle of milk inspector for the town of Phoenixville, Pa.

Dr. J. O. Reed, of Danville, Pa., was a visitor to Philadelphia in November.

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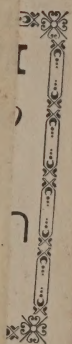
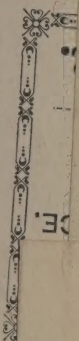
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